OPW
Oifig na nOibreacha Poiblí
Office of Public Works

The Review of the National Preliminary Flood Risk Assessment (PFRA)

3rd Cycle Overview Report

May 2025

Executive Summary

Background

The objective of the National Preliminary Flood Risk Assessment (PFRA), that was a requirement of the EU 'Floods' Directive[1], was to identify areas where the risks associated with flooding might be significant. These areas, referred to as Areas of Potentially Significant Flood Risk (APSFRs), are where detailed flood maps must then be prepared and measures developed to manage and reduce this risk where possible. The PFRA was completed in 2012 after public consultation. The APSFRs identified through the PFRA were then the focus of the National Catchment-based Flood Risk Assessment and Management (CFRAM) Programme.

The PFRA is reviewed, and if necessary updated, on a cyclical basis. The first review of the PFRA (under the 2nd cycle of implementation of the 'Floods' Directive) was completed in 2019[2]. This report presents an overview of the second review of the PFRA (under the 3rd cycle of implementation), referred to herein as the '3rd cycle review'.

The scope and approach undertaken to review and, if necessary, update the PFRA and the APSFRs for the 3rd cycle of implementation of the 'Floods' Directive was determined by the OPW in consultation with the National 'Floods' Directive Coordination Group, with oversight provided through the Interdepartmental Flood Policy Coordination Group.

As with previous cycles, the three key approaches used to review the PFRA and the APSFRs in this current cycle were:

- **A Historic Flood Risk Assessment**: An analysis of floods that have happened since the previous PFRA cycle (i.e. from 2019 to 2024).
- **A Predictive Flood Risk Assessment**: The identification of areas that could be prone to flooding through the use of indicative flood maps and receptor datasets to quantify a Flood Risk Index score.
- **Consultation**: Consultations with local authorities, stakeholders and the Public.

Historic Flood Risk Assessment

The historic flood risk assessment involves an analysis of floods that have happened over recent years (2019 – 2024 inclusive), including their location and impacts. Quite a few major flood events have occurred during this period, with severe impacts, such as Storm Babet in October 2023 that flooded many properties across the South, and in Midleton in particular, and Storm Francis in August 2020, where high intensity rainfall in the South West caused extensive flooding in Bantry and elsewhere around Counties Cork and Kerry.

Records were collated for 701 flood events that occurred during the relevant period. Property flooding was recorded for 208 of these events, with a total of 1,820 properties reported as having flooded, with approximately three-quarters of the properties flooded being within the existing APSFRs. 481 of the properties (26% of the total) that flooded were in events that occurred in areas outside of communities designated as APSFRs in the previous cycle, and in 80% of these events, less than 5 properties were affected for any given event. 14 flood events occurred where 20 or more properties were reported as having flooded.

[1] Directive on the assessment and management of flood risks, 2007/60/EC

[2] https://www.gov.ie/en/publication/1c7d0a-preliminary-flood-risk-assessment-pfra/

Predictive Flood Risk Assessment

The Predictive National Flood Risk Assessment (PNFRA), undertaken as part of the 3rd cycle review of the PFRA, is based on the available flood mapping and the impacts and damage that could arise if the calculated, potential flooding was to occur. The PNFRA made use of the flood maps developed under the CFRAM Programme, but also national indicative flood mapping since developed to cover other areas of the country. The calculation of risk made use of a 'Flood Risk Index' that was developed in the 1st cycle of the PFRA and has been applied again in this cycle with a number of amendments and improvements to the methodology.

Areas with a high Flood Risk Index were brought forward for consultation with the local authorities, and reviewed alongside past flooding information for consideration as APSFRs

Consultation

Consultation and engagement with a number of different stakeholders and the public was a key mechanism in the 3rd cycle review of the PFRA. The consultation process allowed for the gathering of further information on flood risk across the country from relevant stakeholders, including additional past floods information and validation of the predictive assessment results in particular.

Outcomes of the Review of the PFRA

The APSFRs are the areas where it is determined that potential significant flood risks exist or might be considered likely to occur, and are areas of flood risk that are nationally significant that may require intervention and assessment at a national-level.

It should be noted that locations that are not designated as APSFRs, but that are nonetheless at some risk from flooding, can benefit from local flood risk management measures with funding available through the OPW Minor Flood Mitigation Works and Coastal Protection Scheme. Not designating an area as an APSFR does not in any way preclude the provision of funding from the OPW as above to address local flood risk.

There are 194 areas designated as APSFRs for the 3rd cycle, as set out in Section 6 of this report, along with proposed actions for other areas, such as more detailed review of flood maps, the progression of scheme viability reviews and the consideration of local works potentially funded under the OPW Minor Flood Mitigation Works and Coastal Protection Scheme.

Consideration of Climate Change

It is likely that climate change will have significant impacts on flooding and flood risk in Ireland due to rising sea levels, increased rainfall in winter and more intensive rainfall events and storms. Flood maps have been prepared by the OPW, under the CFRAM Programme and the national indicative flood mapping projects, for future scenarios that take account of the potential impacts of climate change, as well as for present-day conditions. These maps have been used to assess the potential future flood risk, including the identification of communities that may be at relatively low risk at present, but where the risk could become significant into the future.

It is not necessary at this point in time to develop and implement measures that may be required to address a degree of flood risk that may only evolve in the future towards the latter part of the century. However, detailed flood mapping will be prepared for the present-day and future scenarios on a prioritised basis to provide a more robust understanding of the potential impacts of climate change on flood risk in each of the relevant communities.

Contents

Executive Summary i

Abbreviations iii

1 Introduction 1

1.1 The Floods Directive 1
1.2 1st Cycle of Implementation of the Floods Directive 2
1.3 2nd Cycle of Implementation of the Floods Directive 3
1.4 Indicative Flood Mapping Datasets 6
1.5 Report Structure 7

2 PFRA Process 8

2.1 Overview of the Approach to the 3rd Cycle Review of the PFRA 8
2.2 Flood Risk 9
2.3 Consideration of Climate Change 10

3 Historic Flooding 12

3.1 The PFRA 12
3.2 Past Flood Event Data Collection 12
3.3 Major flood events 13
3.4 Assessments of floods 17
3.5 Artificial Water-Bearing infrastructure 18
3.6 Conclusion 18

4 Predictive National Flood Risk Assessment 20

4.1 Flood Risk Index (FRI) Assessment Overview 20
4.2 Flood Hazard Areas 21
4.3 Receptor Datasets 22
4.4 Areas of High FRI Score 23

5 Consultation process 25

5.1 Consultation during Previous Cycles 25
5.2 3rd Cycle PFRA consultation 25

6 Outcomes of the Review 28

6.1 Designation of APSFRs 28
6.2 Assessment of Historic Flooding 29
6.3 Assessment of the Predictive National Flood Risk Assessment (PNFRA) 31
6.4 Assessment of Consultation Outcomes 32
6.5 Flood Relief Schemes 32
6.6 Scheme Viability Reviews 34
6.7 OPW Minor Flood Mitigation Works and Coastal Protection Scheme 36
6.8 Artificial Water-Bearing infrastructure 36
6.9 Conclusions 36

7 Climate Change 37

7.1 Climate Change Sectoral Adaptation Plan for Flood Risk Management 37
7.2 Flood Hazard for Future Scenarios 37
7.3 Assessment of Risk for Future Scenarios 39

Appendix A Record of Number of Properties flooded during Past Floods

Appendix B Proposed APSFR Designations for the 3rd Cycle

Abbreviations

AEP	Annual Exceedance Probability
AFA	Area for Further Assessment (a term used for the 1st Cycle PFRA and CFRAM. Subsequently superseded by the term APSFR)
APSFR	Area of Potentially Significant Flood Risk
AWBI	Artificial Water-Bearing Infrastructure
CFRAM	Catchment-based Flood Risk Assessment and Management
DfI	Department for Infrastructure (Northern Ireland)
DTM	Digital Terrain Model
ESB	Electricity Supply Board
EU	European Union
FRI	Flood Risk Index
FRMP	Flood Risk Management Plan
FRR	Flood Risk Review
GIS	Geographic Information Systems
GSI	Geological Survey Ireland
HEFS	High-End Future Scenario
MRFS	Mid-Range Future Scenario
IPCC	Intergovernmental Panel on Climate Change
NCFHM	National Coastal Flood Hazard Mapping
NIFM	National Indicative Fluvial Mapping
OPW	Office of Public Works
PFRA	Preliminary Flood Risk Assessment
PNFRA	Predictive National Flood Risk Assessment
SI	Statutory Instrument
WFD	Water Framework Directive

1 Introduction

The objective of the National Preliminary Flood Risk Assessment (PFRA), that was a requirement of the EU 'Floods' Directive[3], was to identify areas where the risks associated with flooding might be significant. These areas, referred to as Areas of Potentially Significant Flood Risk (APSFRs), are where detailed flood maps must then be prepared and measures be developed to manage and reduce this risk where possible.

The PFRA was undertaken in 2011 and then completed in 2012 after public consultation. The APSFRs identified through the PFRA were then the focus of the National Catchment-based Flood Risk Assessment and Management (CFRAM) Programme.

The PFRA is reviewed, and if necessary updated, on a cyclical basis. The first review of the PFRA (under the 2nd cycle of implementation of the 'Floods' Directive) was completed in 2019[4]. This report presents an overview of the second review of the PFRA (under the 3rd cycle of implementation), referred to herein as the '3rd cycle review'.

1.1 The Floods Directive

The aim of the EU 'Floods' Directive, which came into force in 2007 and transposed into Irish law by Statutory Instrument (SI) No. 122 of 2010, as amended by SI No. 495 of 2015, is to reduce the adverse consequences of flooding on human health, the environment, cultural heritage and economic activity. The Directive requires Member States to undertake three key steps of analysis and planning:

- The PFRA: A screening of flood risk to identify the APSFRs, which were referred to as Areas for Further Assessment (AFAs) in the 1st cycle PFRA and in the National CFRAM Programme. The PFRA is a preliminary assessment, based on available or readily-derivable information.
- The Flood Maps: The preparation of flood hazard and risk maps for the identified APSFRs.
- The Flood Risk Management Plans (FRMPs): The preparation of plans setting out objectives and a set of measures aimed at the management and reduction of flood risk within the APSFRs.

In undertaking these three key steps, the Directive requires Member States to exchange information and coordinate across borders, and to coordinate with the implementation of the Water Framework Directive (WFD). Member states are required to publish the PFRA outcomes, the Flood Maps, and encourage the active involvement of interested parties in the preparation of the FRMPs.

The 'Floods' Directive is cyclical, requiring a review of the PFRA and designations of the APSFRs, the Flood Maps and the FRMPs on a six-yearly cycle.

[3] Directive on the assessment and management of flood risks, 2007/60/EC

[4] https://www.gov.ie/en/publication/1c7d0a-preliminary-flood-risk-assessment-pfra/

1.2 1st Cycle of Implementation of the Floods Directive

1st Cycle PFRA

The PFRA was completed as part of the first cycle of implementation of the Floods Directive in 2012 through three key approaches:

- A Historic Assessment: The use of information on floods that have happened in the past.
- A Predictive Assessment: An assessment of areas that could be prone to flooding, as determined by predictive techniques such as modelling, analysis or other calculations. The potential impacts and damage from such flooding were also considered.
- Consultation: The use of local and expert knowledge of the Local Authorities and other Government departments and agencies to identify areas prone to flooding and the potential consequences that could arise.

In addition to the above, site inspections, referred to as 'Flood Risk Reviews' (FRRs), were undertaken by professional flood risk managers of each probable and possible AFA to review the findings of the PFRA and make recommendations as to whether the location should or should not be designated as an AFA.

The PFRA covered a range of sources of flood risk, including fluvial (from rivers), tidal (from estuaries and the sea), groundwater (such as from turloughs) and pluvial (from intense rainfall events, particularly over urban areas). The PFRA also addressed flood risk that could arise from artificial water-bearing infrastructure, such as reservoirs and raised canals, that was assessed by the organisations with responsibility for that infrastructure (the Local Authorities, Electricity Supply Board (ESB), and Waterways Ireland).

The PFRA considered a range of possible impacts of flooding, such as on people, property, infrastructure, cultural heritage and the environment. For the predictive assessment, the range of impacts were incorporated into a 'Flood Risk Index' to help with the designation of AFAs.

The 1st Cycle PFRA Overview Report, which details the approaches taken and the findings of the PFRA, along with supporting technical reports and draft maps, were published in March 2012 along with a report on the Designation of Areas for Further Assessment. This set out the 300 APSFRs (AFAs) that would be the focus of the National CFRAM Programme.

The reports on the 1st Cycle PFRA are available from the OPW website[5].

The National CFRAM Programme

In line with government policy set out in the Report of the Flood Policy Review Group (OPW, 2004), and to deliver on some of the key requirements of the EU 'Floods' Directive (i.e., the preparation of the flood maps and FRMPs), the OPW developed and implemented the National Catchment-based Flood Risk Assessment and Management (CFRAM) Programme. The objectives of the Programme were to:

- Identify and map the existing and potential future flood hazard and risk within the AFAs.

[5] https://www.gov.ie/en/publication/1c7d0a-preliminary-flood-risk-assessment-pfra/

- Identify viable structural and non-structural options and measures for the effective and sustainable management of flood risk in the AFAs and within the river basins as a whole.
- Prepare a set of FRMPs, and associated Strategic Environmental and Habitats Directive (Appropriate) Assessments, to set out the policies, strategies, measures and actions that should be pursued by the relevant bodies, including the OPW, Local Authorities and other Stakeholders, to achieve the most cost-effective and sustainable management of existing and potential future flood risk within the AFAs.

Pilot CFRAM Studies commenced in 2005-06 that were substantially complete in 2010. The National CFRAM Programme then began in 2011, in parallel with the final stages of the 1st cycle PFRA.

Through the CFRAM Programme, and other parallel projects for certain areas, flood hazard and risk maps were prepared for the 300 AFAs, which were published for consultation in 2015, and 29 FRMPs were prepared. The draft FRMPs were published for public consultation in 2016, with the final FRMPs published in May 2018.

The flood mapping was prepared for the current scenario, but also for two potential future scenarios (the Mid-Range and High-End Future Scenarios, or 'MRFS' and 'HEFS') taking into account long-term developments and the potential impacts of climate change. The assessment of the measures set out in the FRMPs took into account how adaptable a proposed measure might be to cope with the potential increases in flood hazard under these scenarios.

The 300 AFAs assessed under the CFRAM Programme are home to over 3 million people, approximately two-thirds of the national population, and approximately 80% of properties potentially at risk in Ireland from rivers and seas that are the primary sources of flooding in Ireland. Ninety of these communities are in coastal areas. The FRMPs included measures that, in combination with the measures already completed or that were previously at construction or under design, would provide protection to 95% of the properties at risk within the 300 AFAs.

The Flood Maps, FRMPs and supporting technical reports from the CFRAM Programme are available from the OPW flooding information portal[6].

1.3 2nd Cycle of Implementation of the Floods Directive

2nd Cycle Review of the PFRA

The direction and scope of the review of the PFRA for the 2nd cycle implementation of the 'Floods' Directive was determined by the OPW in consultation with the National 'Floods' Directive Coordination Group, with oversight provided through the Interdepartmental Flood Policy Coordination Group. Similarly to the 1st cycle PFRA, the 2nd cycle review took account of three primary sources of information:

- A Historic Flood Risk Assessment: An analysis of floods that had happened since the completion of the 1st Cycle PFRA (i.e. from 2012 to 2018).

[6] https://www.floodinfo.ie

- A Predictive Flood Risk Assessment: The processes and outcomes of the 1st cycle PFRA and the National CFRAM Programme.
- Consultation: A review of the outcomes of consultations undertaken as part of the 1st cycle PFRA and the National CFRAM Programme.

The 2nd cycle review of the PFRA included an assessment of the APSFRs designated under the 1st cycle PFRA, and an assessment of the risk in areas not covered by the National CFRAM Programme to identify the potential need for the designation of other APSFRs. The 2nd cycle review also considered the potential impacts of climate change on flood risk as assessed under the CFRAM Programme.

The historic flood risk assessment involved an analysis of floods that happened over the years 2012 – 2018 inclusive, including their location and impacts. Some major flood events with severe and widespread impacts took place during this period, including the floods arising from the winter storms of 2013-14 and 2015-16, as well as some localised, intense storms such as the floods over the Inishowen Peninsula, Co. Donegal, and in Mountmellick, Co. Laois, in 2017.

In total, data on 870 flood events that occurred during this period were collated and assessed. Over 4,000 properties were recorded as having flooded during those events (noting some of these properties may have flooded during more than one flood event), with 85% of these being within the communities that had been designated as APSFRs. This indicates that the coverage of assessment of the National CFRAM Programme, was inclusive and comprehensive in terms of the areas where there is a significant risk from flooding. Based on the definition of a 'significant' past flood event from the PFRA, 16 such events occurred during the period 2012-18; all of which occurred within the designated APSFRs.

The predictive flood risk assessment involves the estimation of risk based on calculations of flood extents and depths for floods that are predicted to occur with a given probability or frequency, and of the damages and impacts such floods would cause.

The detailed and extensive flood mapping produced under the National CFRAM Programme, which was used to assess the flood risk in each of the designated APSFRs, provides more reliable information on flood extents and depths, relative to the assessment under the 1st cycle PFRA. The analysis under the National CFRAM Programme identified a number of communities that had been designated as APSFRs through the PFRA where the risk was found to be low. While ongoing observation and review of the risk for these communities is required (e.g., in relation to climate change), it was not necessary to maintain these areas as APSFRs.

Consultation, particularly with relevant stakeholders such as the local authorities, is an important mechanism for providing or validating information on flooding and flood risk from past floods and/or predictive assessments. Extensive public consultation and engagement with relevant stakeholders was undertaken from 2011 up to the 2nd cycle review of the PFRA through formal coordination / steering groups, stakeholder groups, presentations to local authorities, informal consultation and liaison and public consultation days.

National public consultations were also undertaken with regards to the PFRA (2011), on the flood maps (2015-16) and on the FRMPs (2016). The submissions made and outcomes of these consultations were taken into account and informed the assessments and mapping of flood risk and the 2nd cycle review of the PFRA.

Regarding **climate change**, Article 14(4) of the 'Floods' Directive requires that, in the second and subsequent cycles of implementation, the '*likely impact of climate change on the occurrence of floods shall be taken into account in the [Review of the PFRA]'*. The potential impacts of climate change were assessed in detail for the 300 APSFRs through the National CFRAM Programme. It has been determined that the potential impacts of climate change can increase flood risk in Ireland very significantly in the future, particularly in coastal areas. These impacts will however evolve over a number of decades.

The Climate Change Sectoral Adaptation Plan for Flood Risk Management (OPW, 2019) identified a range of actions to assess and adapt to the potential impacts of climate change, including the periodic reviews of the potential impacts of climate change on flood hazard and risk. These reviews and assessments will inform the need for future interventions in a timely manner as climate impacts evolve. It was therefore not considered necessary under the 2nd cycle review of the PFRA to designate as APSFRs, at that time, areas currently at low risk but that could be subject to increased risk under future scenarios, i.e., over the coming decades.

The 2nd cycle review of the PFRA determined that no additional APSFRs should be designated under that cycle of implementation of the 'Floods' Directive. Based on the analysis undertaken through the National CFRAM Programme, 101 of the 300 communities were no longer designated as APSFRs for the purposes of the 2nd cycle. A total of 199 communities were designated as APSFRs for the 2nd cycle of implementation of the 'Floods' Directive.

2nd Cycle Review of the Flood Maps

The flood hazard and risk maps, as required under Article 6 of the EU 'Floods' Directive, were prepared through the CFRAM Programme and parallel projects, and were published in 2016. These maps were prepared for existing conditions and also two potential future scenarios, taking account of the potential impacts of climate change.

Following publication of the flood maps, it was decided to keep the flood maps under continual review. This was to help ensure that the maps are kept up-to-date based on current knowledge. A review, and if necessary update, of the maps might be required at any point in time where, for example, there is new infrastructure in place, it is known that a flood plain has changed, or new information arises, such as after a significant flood event.

A review of the maps may be instigated internally within the OPW, based on direct observation or information provided by a Local Authority or another public body, or through information provided by a member of the public or other stakeholder. After an initial assessment is undertaken, to determine if there is evidence to indicate that a change to a map is required, a full review is instigated that may require reassessment of the hydrology, re-survey or remodelling. The revised map is then uploaded to the OPW's flood mapping portal, initially a draft version for consultation, and then a final version to replace the previous CFRAM map. In this way, the best available information is published and publicly available at any given time.

2nd Cycle Review of the FRMPs

The FRMPs were published in May 2018 under the requirements of the EU 'Floods' Directive. The preparation of the FRMPs was the third key step of the Directive that followed the completion of the PFRA and the preparation of the flood maps. The Directive requires a review and update, as necessary, of the FRMPs every six years thereafter. In December 2021, the OPW published the Review of the Flood Risk Management Plans for the 2nd cycle of implementation of the 'Floods' Directive.

The review assessed the work that has been ongoing since the publication of the FRMPs for the implementation of the measures set out in the plans. The measures were assessed in terms of their status and the progress made. These measures are wide ranging and include for example;

- Measures applicable to all areas (e.g. spatial planning for flood risk management).
- Measures identified for particular catchments (e.g. flood forecasting and warning systems).
- Community-level measures (e.g. flood relief schemes).
- Flood relief scheme viability reviews to confirm the likely viability of a scheme.
- Flood relief schemes and works that were progressing or proposed at the time of the publication of the FRMPs through other projects or plans.
- Other measures, such as assessments of existing flood defences, ongoing data collection and further analysis, and the progression of pilot individual property protection schemes.

The OPW, in consultation with key partners and stakeholders through the Interdepartmental Flood Policy Coordination Group and the National 'Floods' Directive Coordination Group, undertook an assessment of current programmes of work relating to flood risk management to identify any new or additional measures that were not previously set out in the FRMPs, and concluded that no new, additional measures needed to be introduced. Based on this analysis, the review determined that it was not necessary to prepare new FRMPs or to update the existing FRMPs.

1.4 Indicative Flood Mapping Datasets

Predictive flood maps were developed as part of the 1st cycle PFRA to enable a predictive assessment of flood risk. Following the 1st cycle PFRA, the CFRAM programme included the preparation of flood hazard and risk maps for the 300 AFAs, including 90 coastal areas, and also for river reaches between the AFAs and downstream of an AFA to the open sea.

Following completion of the National CFRAM Programme, it was decided that improved flood mapping, i.e., beyond that originally produced for the 1st cycle PFRA, was required for areas not covered by the flood mapping produced under the National CFRAM Programme.

National Indicative Fluvial Mapping

In 2020 the National Indicative Fluvial Mapping (NIFM) dataset was published. The objective of the NIFM project was to provide improved flood mapping outside the areas covered by the CFRAM flood maps, and in addition, take climate change into account. The NIFM project produced second generation indicative fluvial flood spatial data that is of a higher quality and accuracy than that produced for the 1st cycle PFRA. It covers 27,000km of river reaches, including all watercourses in Ireland with a catchment area greater than 5 km² and not previously mapped under the CFRAM Programme. The mapping produced has established hazard areas for flood events with Annual Exceedance Probabilities (AEPs) of 5%, 1% and 0.1% for the Current Scenario and for two climate change scenarios; the MRFS and the HEFS, which include a 20% and 30% increase in peak fluvial flood flows respectively. This dataset allows for improved flood risk assessments for areas outside those covered by the CFRAM maps.

National Coastal Flood Hazard Mapping

The National Coastal Flood Hazard Mapping (NCFHM), published in 2021, provided coastal flood extent and depth maps for the Irish coast. The NCFHM used the most recent extreme coastal water levels generated by the Irish Coastal Wave and Water Level Modelling Study 2018. These extreme water levels were interpolated to produce a sea level surface, which was projected inland across a Digital Terrain Model (DTM) to created flood maps. The NCFHM is an indicative dataset that does not take account of coastal defences and local topographical high points or include wave overtopping. The project produced national scale coastal flood extent and depth maps for the 50%, 20%, 10%, 5%, 2%, 1%, 0.5% and 0.1% AEPs for the Current Scenario and for 4 climate change scenarios; the MRFS, HEFS, High+ End Future Scenario and High++ End Future Scenario. These scenarios represent a 0.5m, 1.0m, 1.5m and 2.0m increase in mean sea level respectively. This dataset supersedes the indicative 1st cycle PFRA coastal flood mapping.

GW-Flood (Groundwater mapping)

In response to the extensive 2015/16 groundwater flooding, Geological Survey Ireland (GSI) carried out the GW-Flood Project, to advance understanding of karst groundwater flooding in Ireland. This project included the production of both historic and predictive flood maps. The flood mapping produced focused on groundwater flooding associated with karstified bedrock. Non-karst groundwater flooding (e.g. permeable superficial deposits) was not studied within the project. As of mid-2024, the project had produced groundwater flood extent and depth maps for the 5%, 1%, and 0.1% AEPs for the current scenario.

Pluvial Flood Mapping

For the 1st cycle PFRA, national indicative pluvial flood mapping was produced to inform the predictive assessment of pluvial flood risk. While this mapping performed the function for which it was intended, it was not considered not to be locally accurate due to the significance of local features that could not be incorporated into national-scale mapping. Such features would include varying storm-water drainage capacities, culverts through embankments and kerb-heights along roads that would serve to convey storm water runoff. As a result, it was decided not to produce any further national-scale pluvial flood mapping.

1.5 Report Structure

This report provides a summary of the work undertaken for the 3rd cycle review of the PFRA and the APSFRs. An outline of the scope of this report is given below:

1. **Introduction** – provides information on the purpose of the study and gives background context to the work.
2. **PFRA process** – this section gives an overview of the approach taken to implement the 3rd cycle review of the PFRA.
3. **Historic flooding** – this section provides details on the flood events that have occurred since the 2nd cycle review of the PFRA and the approach taken to assess them.
4. **Predictive Assessment** – the Flood Risk Index methodology used to help with the designation of APSFRs is outlined in this section.
5. **Consultation** – an overview of the consultations undertaken for the 3rd cycle review of the PFRA are detailed.
6. **Outcomes** – the outcomes of the 3rd cycle review of the PFRA are discussed in this section.
7. **Climate Change** – a description of how climate change was considered in the review.

2 PFRA Process

The scope and approach undertaken to review and, if necessary, update the PFRA and the APSFRs for the 3rd cycle of implementation of the 'Floods' Directive was determined by the OPW in consultation with the National 'Floods' Directive Coordination Group, with oversight provided through the Interdepartmental Flood Policy Coordination Group.

The PFRA is intended to identify areas around the country where the risk due to flooding might potentially be significant. The 'Floods' Directive does not provide a specific or quantitative definition for 'significant' flood risk. As local or minor flood risk problems in Ireland can be addressed through local interventions and/or measures that are applicable in all areas, 'significant' risk is defined as risk that is nationally or regionally significant and that may require intervention and assessment at a national-level (see Section 6.1).

It might be noted that aside from the review of the APSFRs, the review of the PFRA can also indicate where reviews and updates of the detailed or national indicative flood mapping might be required, based on the assessment of recent flood events and local information, to improve the flood information available.

2.1 Overview of the Approach to the 3rd Cycle Review of the PFRA

As with previous cycles, the three key approaches used to review the PFRA and the APSFRs in this current cycle were:

- **A Historic Flood Risk Assessment**: An analysis of floods that have happened since the previous PFRA cycle (i.e. from 2019 to 2024).
- **A Predictive Flood Risk Assessment**: The identification of areas that could be prone to flooding through the use of indicative flood maps and receptor datasets to quantify a Flood Risk Index score.
- **Consultation**: Consultations with local authorities, stakeholders and the Public.

In relation to the **Historic Flood Risk Assessment**, a database of information on past flood events was established in 2006, following the collation of all available past flood records up to that point, and has since been maintained. The consultations undertaken as part of the 3rd cycle review also allowed for the gathering of further information on past flood events. This historical flooding information has been used to help identify potential APSFRs and to inform the designation. A description of the assessments of past floods and historical flooding is given in Section 3.

A **Predictive Flood Risk Assessment** has been undertaken for the 3rd cycle review of the PFRA to highlight and quantify levels of flood risk across the country, and to help identify potential APSFRs. Since the 1st cycle PFRA, newer, more detailed flood hazard mapping and receptor datasets have been developed that would allow for a more accurate high-level nationwide assessment of flood risk. It was therefore deemed appropriate to undertake a new national predictive flood risk assessment to inform the review. A summary of this predictive assessment is given in Section 4.

Consultation on the review of the PFRA has included consultation workshops with the local authorities in October 2023 and ongoing consultation with key stakeholders, including through the National 'Floods' Directive Coordination Group. A public consultation is also being held. A description of consultations undertaken for the review of the PFRA is given in Section 5.

The information derived throughout the three approaches outlined above has informed the conclusions of the review of the PFRA and of the APSFRs. This required the consideration of the potential flood risk at each location to determine whether the flood risk might (subject to further assessment) be significant. A description of the review of the designation of APSFRs and the other outcomes of the review of the PFRA are given in Section 6.

2.2 Flood Risk

2.2.1 TYPES OF FLOODING CONSIDERED

The definition of flooding in the 'Floods' Directive is an open and wide-ranging definition, and as such the PFRA considers flood hazards arising from any major source, including:

- Natural Sources:
    - Rivers (fluvial)
    - Sea (coastal and tidal)
    - Groundwater
    - Rainfall (pluvial)
- Artificial Water-Bearing Infrastructural Sources, including Urban Storm-water Drainage Systems, Reservoirs, Water Supply Systems, the ESB Infrastructure (hydropower dams and embankments) and Canals

The bodies that are responsible for the artificial-water bearing infrastructure, namely the local authorities, Uisce Éireann, Waterways Ireland and the ESB, have undertaken reviews of the PFRA with respect to flood risk that could arise from the infrastructure for which they have responsibility and reported this to the OPW.

Floods from sewerage systems have been excluded from the scope of the PFRA[7] on the basis that they cause only localised flooding and hence would generally cause limited damage. They would typically arise from blockage or other unpredictable incidents, and so it cannot be readily projected where they would be likely to occur, and hence where significant flood risk due to this source might exist.

Floods could also arise from sources other than those listed above. However, these would typically include floods for which the adverse consequences would never be deemed to be 'Significant', that are of an extremely low probability of occurrence, or which could not reasonably be predicted to occur, at any given location, based on the combination of their probability and degree of consequence. As such, these types of floods are excluded from the scope of the PFRA. Examples of such floods might include:

- Minor floods (e.g. overflowing appliances, burst plumbing, surcharging of septic tanks, local blockage of culverts, pipes or gullies, etc.).

[7] As provided for under Article 2(1) of the Directive

- Tsunami floods (while these have occurred in Ireland in the past, they are extremely rare and/or have caused less flood impacts than might be expected from an extreme coastal flood event due to storm surge, high tides, etc.).
- 'Freak' occurrences (e.g. over-turned water tanker).

2.2.2 IMPACTS OF FLOODING CONSIDERED

The 'Floods' Directive (Article 1) sets out that the Directive is aiming towards the reduction of the adverse consequences associated with floods for the following four sectors:

- Human Health
- The Environment
- Cultural Heritage
- Economic Activity

For the PFRA, Articles 4(2)(b) and (d) emphasise that the assessment of adverse consequences of past and potential future floods should also focus on these four sectors. The assessments undertaken as part of the 3rd cycle review of the PFRA have duly taken the potential impacts for these four sectors into account where the relevant information is available or readily derivable.

2.3 Consideration of Climate Change

For the purposes of the CFRAM Programme, the OPW adopted two indicative potential futures for flood risk assessment; the MRFS and the HEFS[8]. These were selected to reflect, based on information available at the time, a future in the latter part of the century that would be:

- Typical or near to the general average of the future climate projections (MRFS), and
- A more extreme future based on the upper end of the range of projections of future climatic conditions and the impacts such changes would have on the drivers of flood risk (HEFS).

These two future scenarios, that remain in-line with Intergovernmental Panel on Climate Change projections and the findings of national research projects, were also adopted in the Sectoral Adaptation Plan for Flood Risk Management and are used for the consideration of climate change impacts across a number of flood risk studies and programmes.

The potential impacts of climate change are considered in a number of flood risk management projects in Ireland, including but not limited to:

- **National Indicative Flood Maps** – the latest indicative flood mapping datasets, the NIFM and the NCFHM, include flood hazard maps for future scenarios, incorporating potential climate change impacts. These maps are publicly available on the OPW flood information portal.
- **The CFRAM Programme** Flood Maps – included the production of flood maps for two future scenarios (the MRFS and HEFS). These scenarios take into account long-term developments and the potential impacts of climate change for the 300 AFAs originally designated for the 1st cycle PFRA. The Programme has generated a substantial quantity of data on the potential future increases in flood hazard and risk data nationally.

[8] See Section 5.1, Climate Change Sectoral Adaptation Plan for Flood Risk Management, 2019: https://www.gov.ie/en/publication/97984b-climate-change-and-sectoral-adaptation-plan/

- **The Flood Risk Management Sectoral Adaptation Plan** – this plan, published in 2019, identified a range of actions to assess and adapt to the potential impacts of climate change, including ongoing hydrometric monitoring and research to continue to improve our understanding of the impacts of climate change on flooding, and periodic reviews of the potential impacts of climate change on flood hazard and risk.
- **Flood Relief Schemes** – the OPW are progressing a capital programme of flood relief schemes to manage and mitigate flood risk to APSFRs. As part of this work, Scheme Climate Change Adaptation Plans are being prepared to ensure schemes take the potential future increase in flood risk due to climate change into account as part of the design process, such as through assumptive allowances included now, or to ensure the scheme can be adapted as necessary into the future. Scheme Adaptation Plans are also being prepared for the adaptation of existing schemes to the potential increase in flood risk due to climate change.

Through the above programmes and projects, it has been determined that climate change can increase flood risk significantly in Ireland, particularly in coastal areas. In addition to the flood relief schemes proposed, the need for further, additional flood risk management measures may arise over the coming decades for other communities, where the current level of risk is low. It should be noted however that the degree of change assessed (the MRFS and HEFS), if realised, will occur over a number of decades, rather than in the immediate future (i.e. within this cycle of implementation of the Directive).

Given that the PFRA is reviewed on a 6-year cycle, the list of APSFRs will be updated on an ongoing basis, reflecting any change in potentially significant flood risk with every cycle, and thus accounting for the potential impacts of climate change. It is therefore not considered necessary at this time to designate as APSFRs, areas currently at low risk but that could be subject to significant risk under future scenarios.

3 Historic Flooding

The EU 'Floods' Directive [Article 4(2)(b)&(c)] requires an assessment of past floods as part of the PFRA. Areas that have flooded and suffered significant adverse consequences from flood events in the past may continue to be subject to significant flood risk in the future.

Information on past floods is critical to all flood risk assessments and is a central pillar in the review of APSFRs. The 3rd cycle review of the PFRA has made use of a substantial archive of past flood records that was established in 2006, and has since been maintained by the OPW. All available records of past floods are collated and evaluated by the OPW and if appropriate, added to this archive. The National Flood Data Archive is available to view on the OPW flood information portal. The database now includes approximately 3,600 flood event reports relating to incidences of flooding at nearly 6,600 locations around the country.

To aid with the review of the APSFRs, flood events were assessed in the context of:

- Historic flooding from previous cycles
- Outcomes of the predictive assessment
- Specific local information

3.1 The PFRA

The assessment of past floods for the 1st cycle PFRA considered floods that occurred in the years prior to 2012. A description of this assessment is provided in Section 3 of the National PFRA Overview Report for the 1st cycle, with a table of past flood information provided in Appendix C of that report[9]. The assessment of past floods for the 2nd cycle review of the PFRA covered the floods that occurred in the period 2012 - 2018 (inclusive). A description for this assessment is provided in Section 2 of The Review of the National Preliminary Flood Risk Assessment report[10], with a table of past flood information provided in Appendix C of that report.

The 3rd cycle review of the PFRA has included an analysis of floods that occurred in recent years, in the period 2019 – 2024 (inclusive), and for which the OPW has collated or received relevant information.

3.2 Past Flood Event Data Collection

The sources of information to identify and collate information on past flooding included:

- Data collated through the OPW flood data collection processes to maintain the National Flood Data Archive.
- Data provided in response to a specific request issued to all of the local authorities to inform the 3rd cycle review of the PFRA.
- Information gathered from other sources such as media reports, and via social media.

[9] https://www.floodinfo.ie/publications/?t=30
[10] https://www.gov.ie/pdf/?file=https://assets.gov.ie/46527/725059a026c744f0b91cecd0e89e1e39.pdf#page=1

The OPW is committed to the continuous improvement of the flood data collection process. Following the completion of the 1st cycle PFRA, the Flood Data Collection Handbook, Flood Data Collection Technical Form, and Flood Data Collection Short Form were introduced to encourage reporters of flood events to provide useful information in a standardised format, including information on flood impacts, and to gather information on flood events in a safe manner.

An online reporting user interface is currently under development to assist with the submission of flood event reports, and to increase the ease of reporting of impacts. In addition to this, the OPW is engaging with Climate Action Regional Offices in order to incorporate flood event reporting into the Weather Impact Register mobile application. The OPW is also engaging with the CAMEO project, (Creating an Architecture for the Manipulation of Earth Observation data) which is a collaborative effort between University College Dublin and industry partners. This project establishes a national platform to access Earth Observation data with advanced analytics, which can be used to add flood extent data to existing records, and to add to records of areas where flood events have occurred but reports have not been received. This has the potential to provide near real time monitoring of areas where flood forecasting has indicated a high probability of flooding.

3.3 Major flood events

This section provides a summary on some of the more significant flood events which have occurred since 2019 in chronological order.

4TH OCTOBER 2019 – STORM LORENZO

- **Source:** Fluvial / Pluvial
- **Areas affected:** Majority of reports from Donegal, with Donegal Town particularly affected
- **Type of flooding:** Short duration flooding (appx. 1 day)
- **Numbers of properties affected:** 13 residential properties and 9 commercial properties reportedly flooded, all in Donegal Town

Storm Lorenzo caused strong winds and heavy rainfall across Ireland, particularly in County Donegal. Donegal Town experienced property flooding as a result of the River Eske and tributaries overtopping, and as a result of surcharging and exceedance of capacity of drainage infrastructure.

29TH JUNE 2020 - DROMAHAIRE

- **Source:** Fluvial
- **Areas affected:** Dromahaire, County Leitrim
- **Type of flooding:** Short duration flooding (appx. 1 day)
- **Numbers of properties affected:** 10 residential properties flooded internally with a further 10 cut off by flooding

Floods along the River Bonet caused by heavy rainfall in a steep catchment.

24TH AUGUST 2020 – STORM FRANCIS

- **Source:** Primarily pluvial, with one fluvial event reported in County Kerry
- **Areas affected:** Cork and Kerry, particularly Bantry, Bandon and Skibbereen
- **Type of flooding:** Short duration flooding due to short duration heavy rainfall
- **Number of properties affected:** 109, including 16 residential and 93 commercial

Flooding caused by short duration intense rainfall was reported. Majority of flooding reported due to exceedance of capacity of surface water networks in urban settlements. 102 of the properties flooded were in Bantry.

2ND SEPTEMBER 2020 - CLIFDEN

- **Source:** Fluvial flash flooding due to short duration intense rainfall
- **Areas affected:** Clifden, and also Maam Cross/Recess, County Galway
- **Type of flooding:** Short duration, less than 5 hours
- **Numbers of properties affected:** 34 properties flooded including 31 residential properties and 3 commercial properties

A period of high intensity rainfall in the Connemara area of County Galway with up to 50mm rainfall recorded. This resulted in a surge in the Owenglin River causing flooding along the course of the river.

19TH OCTOBER 2021 – CORK CITY

- **Source:** Tidal event
- **Areas affected:** Cork City Centre, Morrison's Island
- **Number of properties affected:** Over 100 properties reportedly flooded, not broken down by property type

Flooding caused by a tidal surge. The River Lee breached its banks at Morrison's Island in the centre of Cork City.

7TH DECEMBER 2021 – STORM BARRA

- **Source:** Flooding reported due to a number of sources, including intense rainfall, fluvial, tidal and coastal
- **Areas affected:** Majority of reports from Cork/Kerry area, but flooding also reported in Dublin and Donegal
- **Type of flooding:** Mostly short duration
- **Numbers of properties affected:** 28 properties reportedly flooded, including 3 residential and 25 commercial. All reported property flooding occurred in Bantry, County Cork

Storm Barra was a hurricane-force extratropical bomb cyclone that impacted Ireland with heavy rainfall and damaging wind gusts. 14 flood events reported across the country, majority of which were in Cork and Kerry, with events also reported in Dublin and Donegal.

25TH DECEMBER 2021

- **Source:** Intense rainfall event caused both pluvial and fluvial flooding
- **Areas affected:** Flooding reported across the south-east of Ireland, primarily in County Wexford
- **Type of flooding:** Duration of flooding not reported, likely short duration
- **Numbers of properties affected:** 35 properties reportedly flooded. This included 18 residential, 12 of which were in Bridgetown in Wexford, and 17 commercial, of which 15 were in Bridgetown

Prolonged heavy rainfall resulted in flooding across the south-east of Ireland on Christmas Day 2021, with 36 separate incidences of flooding reported.

15TH AUGUST 2022 – NEW ROSS AND ENVIRONS

- **Source:** Pluvial
- **Areas affected:** New Ross and Environs, County Wexford. Flooding also reported due to same event in Tullow and Bagnelstown, County Carlow, however no property flooding reported
- **Type of flooding:** Short duration flash flooding
- **Number of properties affected:** 68 properties, including 30 residential and 38 commercial

A sustained heavy downpour in the New Ross area resulted in nearly 40mm of rain falling in an hour. The resulting flash floods caused significant flooding around the quay area.

28TH OCTOBER 2022

- **Source:** Mostly pluvial, with some fluvial events reported
- **Areas affected:** Cavan, Tipperary and Kilkenny
- **Type of flooding:** Reported durations ranging from 16 hours to 1 day
- **Numbers of properties affected:** 35 properties flooded including 19 residential and 16 commercial

Flooding reported due to heavy rainfall, with events reported in Cavan, Tipperary and Kilkenny. Majority of property flooding reported in Freshford, County Kilkenny, where 17 residential properties and 2 commercial properties were flooded.

20TH JUNE 2023 - KERRY

- **Source:** Pluvial
- **Areas affected:** Listowel and Killarney
- **Type of flooding:** Short duration
- **Numbers of properties affected:** 50 properties flooded, including 33 residential and 16 commercial properties in Listowel, and 1 residential property in Killarney

Heavy rains overwhelmed the storm drainage system of Listowel causing pluvial flooding across the town. Localised pluvial flooding was also reported across a number of areas in Killarney, including Countess Road, Muckross Road, and Park Road.

5TH AUGUST 2023 – STORM ANTONI

- **Source:** Pluvial
- **Areas affected:** Significant flooding reported in Meath, Cavan and Dublin
- **Type of flooding:** Short duration, with events reported from 2 to 15 hours
- **Numbers of properties affected:** 48 properties flooded, including 47 residential (30 in Bettystown, County Meath and 17 in Clontarf in Dublin City), and 1 commercial property in Cavan Town

Intense rainfall event which, in the worst affected area in Bettystown, combined with a high spring tide. 8 residents were evacuated from an apartment complex in Clontarf, with 1 hospitalised.

18TH OCTOBER 2023 – STORM BABET

- **Source:** Intense rainfall event caused both pluvial and fluvial flooding
- **Areas affected:** Nationwide but primarily the south of Ireland, in particular County Cork

- **Type of flooding:** Varying duration, ranging from short duration up to multiple days in areas, with prolonged flooding reported in Youghal. Most reported flooding durations ranging from 4-18 hours
- **Number of reported properties affected:** 875 properties including 548 residential and 327 commercial (with 395 residential and 286 commercial in Middleton alone, and 46 properties flooded in Mogeely, Co. Cork)

On the 17th and 18th October 2023, Storm Babet brought extremely heavy rainfall to the south of Ireland leading to significant flooding, with the town of Midleton, Co. Cork particularly impacted, and other communities also experiencing property flooding, such as in Mogeely, Ladysbridge, Castlemartyr, Killeagh and Carrigaline in Co. Cork. The intense 2-day rainfall fell on soils saturated by over 3 months of above average rainfall. Peak river flows coincided with a low spring tide, meaning that the river was able to efficiently drain into the sea. Had the event occurred at high tide and/or with substantial storm surge, flooding could have been much more extensive.

30TH OCTOBER 2023 - STORM CIARÁN

- **Source:** Intense rainfall event caused both pluvial and fluvial flooding
- **Areas affected:** Flood events reported across north County Louth, particularly in the Dundalk and Carlingford areas
- **Type of flooding:** Prolonged flooding in Carlingford, 1-3 day durations reported elsewhere
- **Numbers of properties affected:** 51 properties were flooded, including 37 residential and 14 commercial properties. Of these, 32 residential and 12 commercial properties were flooded in Carlingford alone.

Extremely heavy rainfall, falling on already saturated ground overwhelmed existing ditches and drainage. Surface water runoff from high ground areas overflowed onto public roads and carried debris which in some areas blocked existing culverts and channels, exacerbating the situation. Rivers, including the Flurry, Bavan, Turlough and Ryland overflowed their banks.

13TH NOVEMBER 2023 - STORM DEBI

- **Source:** Intense rainfall event caused pluvial flooding, low pressure and strong onshore winds caused significant storm surge
- **Areas affected:** The west of Ireland. County Galway was particularly affected, with pluvial flooding also reported in Sligo
- **Type of flooding:** Short duration flooding
- **Numbers of properties affected:** 65 properties were flooded, including 40 residential and 25 commercial properties. Of these, 25 properties were flooded in Kinvarra, with significant flooding also reported in Oranmore, Clarinbridge and Galway City.

Storm Debi hit Ireland in the early hours of the 13th November. Heavy short duration rainfall combined with low atmospheric pressure and strong onshore winds resulted in pluvial and storm surge flooding across the west of Ireland, with County Galway worst affected.

22ND NOVEMBER 2024 - STORM BERT

- **Source:** Intense rainfall event leading to significant pluvial and fluvial flooding
- **Areas affected:** The south-west and west of Ireland was affected, particularly Counties Cork, Donegal, Kerry, Limerick, Galway, Sligo, and Clare. Flooding was also reported in Cavan.
- **Type of flooding:** Short duration flooding

- **Numbers of properties affected:** A number of residential properties reportedly flooded, including 47 properties in Listowel and the lands downstream, and 24 properties in Killybegs

A torrential rainfall event combined with snow and ice melt to cause significant damage across the south-west and west of Ireland in particular. In addition to the property flooding referenced above, more than 100 roads nationwide were reportedly impassable.

3.4 Assessments of floods

The 3rd cycle review of the PFRA has primarily considered the floods that have occurred since the completion of the previous PFRA review, i.e. the floods that have occurred from 2019 to 2024. A table of the flood events from the period 2019 – 2024, and for which the OPW has collated or received relevant information, is provided in Appendix A. This information has been considered in the context of any previous history of flooding for a particular area.

Any location where 5 or more properties flooded in a single event has been investigated in order to assess whether the source and mechanism of flooding recorded is consistent with the predictive data available and/or is supported by local knowledge provided by the local authorities, and whether further assessment may be required. Similarly, following the predictive assessment, any areas deemed to have a high Flood Risk Index Score (Section 4.4) were investigated to assess whether the risk of flooding predicted is supported by the historic flood records.

3.4.1 IMPACTS OF FLOODING CONSIDERED

Human Health and the Economy

The flooding of properties, both residential and commercial will have impacts on people (e.g., risk of injury or fatality, ill health from contaminated water, stress, loss of belongings of personal value, etc.) and economic activity (damage to or destruction of commercial premises, machinery, stock, interruption of service due to access difficulties for customers and staff, etc.). At the level of the PFRA, it is considered appropriate to use the number of properties flooded as an indicator for degree of impact for both these sectors.

Cultural Heritage and the Environment

Information on the impact of past floods on cultural heritage, water quality and the environment is sought via the flood event data collection form referred to above. However, commonly such information on these impacts is not reported, as either, the impacts that occurred in a given flood are not considered significant, or the impacts are unknown. In total, information on flood impacts on cultural heritage were reported for three events, and flood impacts on the environment were reported for thirteen events (impacts on the Lough Ree environmental protected area for one event, and impacts on water quality for twelve events).

3.4.2 ASSESSMENT OF INFORMATION AVAILABLE

Human Health and the Economy

Of the 701 recorded events, information was available for 208 events where properties flooded, with a total of 1,820 properties reported as having flooded, with approximately three-quarters of the properties flooded being within the existing APSFRs. 481 of the properties (26% of the total) that flooded were in events that occurred in areas outside of communities designated as APSFRs in the previous cycle, and in 80% of these events, less than 5 properties were affected for any given event.

Cultural Heritage and the Environment
The impacts on cultural heritage included reports of flooding in Oranmore Castle Tower House, County Galway during Storm Debi, flooding of the grounds of the castle at Castlefarm, Dunmore, County Galway, and reports of flooding in the grounds of Carlingford Priory, County Louth during Storm Ciarán.

Water quality / environmental impacts reported were typically flooding of, or disruption to, the operation of wastewater treatment facilities and septic tanks, or surcharging of foul or combined sewers. No major environmental pollution incidents were reported.

3.4.3 SIGNIFICANT FLOODS

Human Health and the Economy
Under the 1st cycle PFRA, a 'Historic Risk' Category of '4' was assigned to communities where past events had led to the flooding of 50 or more properties within that community, whereby a community with a 'Historic Risk' Category of '4' would have been designated as a 'Probable AFA'. The 'Probable AFAs' were the communities that were to be designated as APSFRs unless other information indicated that this should not be the case. Applying this criteria to floods that occurred during the 2nd cycle review of the PFRA resulted in 16 such events, all of which were in communities previously designated as AFAs in the 1st cycle.

For the 3rd cycle review of the PFRA, a lower threshold of 20 or more properties has been applied, with the intention of increasing the coverage of the 'Floods' Directive nationally to further enhance Ireland's resilience to flood events. It can be seen in Appendix A that 14 such events occurred during this period, ten of which were in communities designated as APSFRs during the 2nd cycle, two of which were in communities designated as APSFRs in the 1st cycle but de-designated during the 2nd cycle, and two of which that were in communities not previously designated. The assessment of these communities as APSFRs or otherwise, and the approach to further understanding or managing the risk in these communities, is detailed in Section 6.2.

Cultural Heritage and the Environment
Very few reports were received on flooding to cultural heritage, water quality and the environment. Of those that were, only minor / local impacts were reported. No reports were received of floods causing impacts of national significance with regard to these sectors.

3.5 Artificial Water-Bearing infrastructure

A review of past floods related to Artificial Water-Bearing Infrastructure (AWBI) has been undertaken by the responsible bodies as part of the PFRA for such infrastructure. While some flooding due to AWBI has occurred in the period 2019 – 2024, there have been no significant incidents reported.

3.6 Conclusion

In relation to the past floods that occurred in the period 2019 – 2024:

- Records are available for 701 flood events, with reports of flooding to 1,820 properties, of which 481 properties are in areas outside communities previously designated as APSFRs
- 14 flood events occurred where 20 or more properties were reported as having flooded, of which 10 occurred within areas previously designated as APSFRs during the 2nd Cycle PFRA. The other communities with this number of properties flooded in an event have been assessed with regards to possible designations or further assessments, as set out in the Section 6.2.

- There is no specific information available indicating significant detrimental impacts to the environment or cultural heritage caused by flooding over the relevant period.
- There were no significant past flood events arising from AWBI.

The above conclusions have informed the assessment and designation of APSFRs.

4 Predictive National Flood Risk Assessment

The Predictive National Flood Risk Assessment (PNFRA) relates specifically to the predictive assessment for the 3rd cycle review of the PFRA. The main objective of the PNFRA was to undertake a predictive assessment of flood risk to support the identification of APSFRs across Ireland in line with the 'Floods Directive'. This was done through a Flood Risk Index (FRI) Assessment.

The FRI Assessment consists of a non-monetised, numeric assessment of flood risk for a variety of sources of flooding at a national scale. It is a spatial assessment which primarily considers the presence of receptors within a flood extent of a given event probability (or 'return period'), and their respective vulnerability. This FRI Assessment methodology has been prepared by the OPW to evaluate the current and potential future flood risk in Ireland to comply with the requirements of the 'Floods' Directive. The outcome of the FRI Assessment is to identify Areas of High FRI Scores for both the current scenario and for potential future scenarios. Areas of High FRI Scores highlight communities across the country that could potentially have significant levels of flood risk and therefore warrant further assessment as potential APSFRs. The Areas of High FRI Score were reviewed against historic flood events and examined with the local authorities as part of the consultation for the 3rd cycle review of the PFRA.

This section of the report provides an overview of the FRI methodology and details how Areas of High FRI Score were identified.

4.1 Flood Risk Index (FRI) Assessment Overview

The FRI Assessment for the 3rd cycle review of the PFRA is broadly consistent with the original predictive assessment undertaken in the 1st cycle PFRA. It comprises three main elements including the definition of '**flood hazard**' areas, '**flood receptors**' and their vulnerability, and with the third element involved then combining these two data sets to evaluate '**flood risk**'.

Flood hazard areas are the predicted extents of flood inundation for extreme events, for a range of probabilities. Flood hazard areas (or flood extents) have been defined nationally for the following principal sources of flooding; fluvial flooding from rivers, tidal flooding along the coast and estuaries, and groundwater flooding from emergent subsurface water. Pluvial flooding was not considered for the FRI Assessment, as no national predictive flood hazard mapping has been produced at a scale or extent suitable for use in the assessment. Pluvial flooding was included within the wider PFRA through the review of past floods and consultation with relevant stakeholders.

Flood receptors are defined as people, places, objects or activities that might suffer harm or damage in the event of a flood. The receptors reflect the impact of flooding on human health, the environment, cultural heritage and economic activity, consistent with Article 4 of the Floods Directive.

Flood risk is a combination of the probability of an area or receptor being flooded with the impact, or consequences, if that area or receptor were to flood.

Both the flood hazard areas and the flood receptors were compiled and reviewed in a Geographical Information System (GIS). This approach enabled layers of spatial data covering different flood mechanisms and different types of receptors to be used to define flood risk. Flood risk was only defined for receptors located within the flood hazard areas. Identified receptors

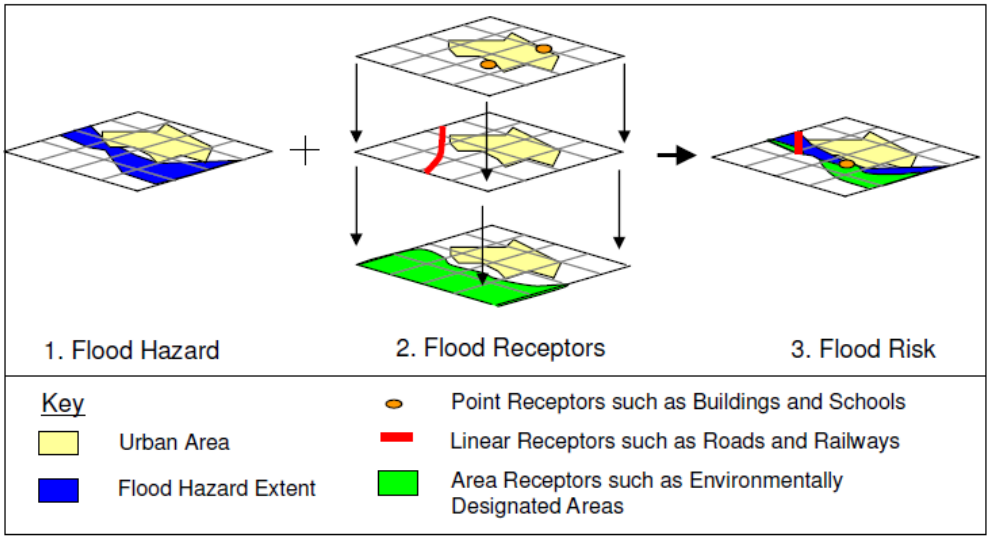

Figure 1: Flood risk calculation on a spatial basis

outside the flood hazard area are not at flood risk. A visual representation of this is given by Figure 1 below.

4.2 Flood Hazard Areas

A set of national flood hazard extents have been developed to define the areas that would be inundated by flood water by one or more of the principal sources of flooding. Each of these flood hazard areas is indicatively representative of a specified probability of the flood event occurrence. The probability of the flood event occurrence is detailed as the AEP, which is the probability (expressed as a percentage) of a flood event occurring in any given year. This section details the best available national datasets used to define the flood hazard areas associated with each principal sources of flooding for the purposes of the FRI Assessment.

The flood mapping produced and used within the 1st cycle PFRA was not used in the FRI Assessment as more accurate and up-to-date datasets have since become available for the flood sources considered, as outlined below.

For fluvial flood hazard areas, the CFRAM and NIFM datasets were used, as described in Sections 1.2 and 1.4 respectively. The CFRAM programme included the preparation of fluvial flood maps for the 300 AFAs designated in the 1st cycle PFRA, and for river reaches between the AFAs and running downstream of an AFA to the open sea. The CFRAM flood mapping provides much more reliable information than the 1st cycle PFRA on flood extents and depths. The NIFM flood mapping covers all watercourses in Ireland with a catchments size greater than 5km^2 that were not mapped under the CFRAM programme. Although not as accurate as the CFRAM mapping, the NIFM datasets provide more reliable, higher quality flood mapping relative to the 1st cycle PFRA fluvial mapping.

To create the tidal flood hazard areas for the FRI Assessment, the NCFHM datasets were used, as described in Section 1.4. The NCFHM utilised the most recent extreme coastal water levels generated by the Irish Coastal Wave and Water Level Modelling Study 2018. Both the coastal flood mapping produced for the 1st cycle PFRA and the CFRAM programme were based on the older Irish Coastal Protection Strategy Study extreme water level data, and so the NCFHM was used nationally for the FRI Assessment.

Groundwater flood extents for the FRI Assessment utilised the results of the GWFlood project produced by GSI, as described in Section 1.4. At the time the FRI Assessment was undertaken, GWFlood groundwater flood maps did not take account of the potential impacts of climate change on groundwater flooding. For this reason, groundwater flooding was not considered in the future scenarios.

It is acknowledged that new and updated hydraulic modelling (relative to that undertaken for the CFRAM Programme) is or will be available for areas now protected by flood relief schemes. However, this data is only available for a very limited number of communities and is hence not appropriate for use as part of a national screening exercise, and it should be noted that communities where such schemes have been built would have been designated as APSFRs in the 1st and 2nd cycles.

Table 1 below summarises the datasets used for each flood source, the type of flood maps available, and the AEP events used for the FRI Assessment. The three AEPs were chosen to provide a range of probabilities and allow for consistency across the datasets.

Table 1: Flood hazard area datasets

Flood source	Dataset	Flood maps			Annual Exceedance Probability (AEP)		
		Extents	Depths	Climate Change	5%	1%	0.1%
Fluvial	CFRAM	✓	✓	✓	✓	✓	✓
	NIFM	✓	✓	✓	✓	✓	✓
Coastal	NCFHM	✓	✓	✓	✓	✓	✓
Groundwater	GWFlood	✓	✓	X	✓	✓	✓

With tidal and fluvial flood mapping available for future climate change scenarios (MRFS and HEFS), it was considered appropriate to include potential climate change impacts in the FRI Assessment through the definition of flood hazard areas and identification of Areas of High FRI scores for future scenarios as well as for the Current Scenario.

4.3 Receptor Datasets

In order to determine areas of flood risk across the country, data on flood risk 'receptors', as defined in Section 4.1 above, was assessed in combination with the flood hazard extents described in Section 4.2.

The identification and classification of receptors was not substantially changed from the hierarchical classification structure adopted for use in the 1st cycle PFRA. A comprehensive data collection and review exercise was undertaken to identify, review and assure the best readily

available and derivable information was used for each receptor type. PRIME2 and Geodirectory data were the primary datasets used to identify receptors, although many other datasets were obtained from the relevant agencies and organisations.

Flood receptors were analysed by determining an FRI score, consistent with the approach in the 1st cycle PFRA. For each flood receptor, the FRI score was assessed as the product of exposure and vulnerability where; exposure was the presence of a flood receptor within a flood hazard area, and vulnerability was a measure of the impact of flooding on that receptor.

Given the diversity of receptors considered within the FRI Assessment, a 'semi-quantitative' method of evaluating the impact of flooding across all the receptor types was utilised. Each receptor was given a distinct level of vulnerability, relating to its importance and susceptibility to damage. The receptor vulnerability value was then multiplied by the exposure value (the highest AEP extent to flood that receptor) to produce an FRI score for that receptor.

The FRI score for each receptor was calculated based on the most significant source of flood risk and was not cumulative. Table 2 below shows a table for calculating the FRI score for a receptor. As an example, a receptor classified with Extreme Vulnerability to flooding would receive a score of 1,250 if it was located inside the 5% AEP flood extent (250 x 5), but only a score of 25 if it was located outside the 1% AEP flood extent but within the 0.1% AEP flood extent (250 x 0.1).

Table 2: Example FRI Score Calculation Table

Vulnerability Class	Vulnerability Class Factor	Probability of Flooding (Annual Exceedance Probability)		
		5%	1%	0.1%
Critical	2500	12,500	2,500	250
Extreme	250	1,250	250	25
High	25	125	25	2.5
Moderate	2.5	12.5	2.5	0.25
Low	1	5	1	0.1
Very Low	0	0	0	0

4.4 Areas of High FRI Score

Instead of limiting the review of flood risk to individual receptors, an area-based flood risk analysis was developed to determine areas, or communities, where the cumulative flood risk to a number of different receptors could be assessed. In all cases, amalgamations which exceeded the defined FRI threshold would be identified as an 'Area of High FRI Score'.

A 500m x 500m grid system was developed across the country in GIS with the cumulative FRI score for each grid square determined. This centred on firstly screening out grid squares where flood risk was deemed not to be significant (total FRI score of less than 15), with adjacent grid squares not screened-out then amalgamated and a total FRI score then calculated for the amalgamated areas, which was the cumulative sum of all amalgamated grid squares within that area

A manual verification exercise then followed to ensure the proposed areas were rational and to consider the value in grouping amalgamations that were in very close proximity and/or districts (flood cells) within one particular community. Those amalgamations with a total FRI score of 250 or greater were identified as Areas of High FRI Score. Sensitivity testing on the threshold was undertaken before a value 250 was used to ensure that a sizeable number (303) of Areas of High FRI Score were identified for further assessment under the PFRA, while also excluding areas with low levels of risk.

The Areas of High FRI Score identified were brought forward for consultation with the local authorities, and reviewed alongside past flooding information for consideration as APSFRs.

5 Consultation process

Consultation and engagement with a number of different stakeholders and the public was a key mechanism in the 3rd cycle review of the PFRA. The consultation process has allowed for the gathering of further information on flood risk across the country from relevant stakeholders, including additional past floods information and validation of the predictive assessment results in particular.

5.1 Consultation during Previous Cycles

A number of consultations have been carried out as part of the implementation of the Floods Directive since the 1st cycle PFRA. These have included public consultations at a national scale, engagements with key stakeholders bi-laterally and through the relevant governance structures, and local, community-level engagement on a face-to-face basis. These have informed the OPW's understanding of flood risk across the country.

Particular emphasis has been placed on local engagement with local authority staff at all stages, and also on community-level engagement when undertaking the detailed assessments of flood risk and assessing potential flood risk management measures. During the CFRAM Programme, almost 500 public consultation days were held in communities across the country through which the OPW and its consultants could engage with the communities to confirm past experiences of flooding and review the detailed flood maps, and to consider potentially viable measures. Information provided during the consultation days was particularly important in refining or confirming the flood maps, and hence the understanding of flood risk in each community.

5.2 3rd Cycle PFRA consultation

5.2.1 THE NATIONAL FLOODS DIRECTIVE COORDINATION GROUP

Following completion of the CFRAM Programme in 2018, the CFRAM Steering Group was reformed as the National Floods Directive Coordination Group. The purpose of this Group is to support both the technical aspects for the delivery and review of the FRMPs and the six year cyclical review of flood risk management required by the EU Floods Directive.

In 2022, the Group considered the overall approach to the 3rd cycle implementation of the Directive, including the review of the PFRA, with the detailed approach to the review of the PFRA then agreed by the Group in 2023, and subsequently endorsed by the Inter-Departmental Flood Policy Group. The Group has since been appraised of progress made throughout the review and been presented with provisional outcomes for consideration and discussion.

5.2.2 CROSS-BORDER COORDINATION

The OPW has an on-going relationship with the Dept. for Infrastructure, Rivers (DfI Rivers), which is the Competent Authority for the implementation of the 'Floods' Directive in Northern Ireland. In 2009, it was agreed between the two Authorities that a Cross-Border Coordination Group would be established to coordinate the implementation of the 'Floods' Directive across the border, and that this would be supported by a Cross-Border Technical Coordination Group. These groups first met in November 2009 and February 2010 respectively, and have met on a number of occasions since. The purpose of the Groups is to coordinate on the identification of APSFRs, to share information and agree approaches to the production of flood mapping in border areas and to coordinate on the identification of measures and the preparation of Plans.

At meetings of the Groups since 2022, DfI Rivers and the OPW have undertaken information exchange on the approach to the implementation of the 3rd cycle of the Floods Directive, including the review of the PFRA, with a view to coordinating approaches and communications where appropriate.

5.2.3 COORDINATION WITH THE WATER FRAMEWORK DIRECTIVE

Both the Water Framework Directive (WFD) and the 'Floods' Directive are concerned with water and river basin management, and hence coordination is required between the two processes to promote integrated river basin management, achieve joint benefits where possible and address potential conflicts. There has been, and will continue to be, coordination with the authorities responsible for the implementation of the WFD through a range of mechanisms, including information exchange, bi-lateral meetings and cross-representation on various management groups.

The authorities responsible for the implementation of the WFD are represented on the National Floods Directive Coordination Group through which they are informed of, and have the opportunity to provide input to, the 3rd cycle implementation of the Floods Directive, including the review of the PFRA.

5.2.4 LOCAL AUTHORITY WORKSHOPS

The purpose of the workshops with local authority staff was to obtain expert, local knowledge on flood risk to communities to aid the designation of APSFRs. Representatives of all 31 Local Authorities in Ireland were contacted and informed of the 3rd cycle review of the PFRA and requested to submit any additional information they had regarding past flooding that has occurred since the 2nd cycle review of the PFRA.

A series of workshops were held with local authority staff in October 2023 in Dublin, Carrick on Shannon, Kilkenny and Limerick. A total of 41 Local Authority staff attended the workshops, representing 27 of the 31 authorities in the country. Those that were unable to attend a workshop were subsequently contacted bi-laterally regarding potential APSFRs in their region.

The workshops focused on past floods and analysing the Areas of High FRI Score identified during the predictive assessment. In relation to past flooding, records of past floods were examined to determine if any further information could be obtained, particularly regarding the source and impacts of the flooding. Areas of High FRI score were studied to validate the results of the predictive assessment. This included examining flood hazard extents, receptors at risk, and the level of flood risk to a community. Communities that were not Areas of High FRI Score but that were perceived by the local authority staff to potentially be at risk of flooding were also highlighted for consideration. Information on pluvial flood risk and extents and the past experience or perceived significance of impacts was specifically sought during these workshops, noting that this was not included in the predictive assessment.

Dialogue with local authority staff was then ongoing throughout the PFRA review process to obtain further information or clarifications regarding past floods and communities potentially at risk of flooding, and the local authority staff have been consulted on the provisional outcomes of the review. The information obtained through the local authority workshops and subsequent consultation was incorporated into the APSFR designation process.

5.2.5 ENGAGEMENT WITH THE AWBI AUTHORITIES

The bodies with responsibility for AWBI, namely Irish Water, Waterways Ireland, the Electricity Supply Board, and Local Authorities were consulted regarding the 3rd cycle review of the PFRA. The AWBI includes infrastructure such as urban storm water drainage systems, water supply systems, reservoirs, dams, and canals. These organisations were requested to provide, in the context of the AWBI for which they are responsible, information on any past flooding and any predictive assessments undertaken and were invited to identify areas or communities at potentially significant flood risk. The information provided has informed the review of the PFRA.

5.2.6 INTERNAL OPW CONSULTATION

Alongside the consultation that has been undertaken with the local authorities, there has been consultation internally within the OPW to validate and/or supplement the findings of the assessment of past flood and the PNFRA, and to incorporate any other schemes or activities ongoing and relevant to the objectives of the review of the PFRA.

5.2.7 PUBLIC CONSULTATION

A public consultation process was undertaken on the Review of the PFRA and the proposed APSFRs. The draft overview report on the 3rd cycle review of the National PFRA was published on 27th March, 2025, with the consultation period running from the 28th March for four weeks up to and including the 25th April. The draft overview report was published to the OPW website homepage, with a summary of the background of the review provided, along with instructions for making a submission. A public notice of the consultation was also published in the Irish Independent on 28th March.

A total of twenty-two (22) submissions were received in response to the public consultation. Twenty of the submissions made were from members of the public, with the remaining two submissions being made by a non-governmental organisation and a semi-state utility company.

Almost all of the submissions made referred to areas that had been proposed as APSFRs in the Draft Report (with these submissions requesting the prioritisation of flood relief measures in the relevant areas), or where it was proposed in the Draft Report that further detailed assessment was to be undertaken.

The 3rd Cycle Overview Report has been updated to take account of the submissions made and to further clarify issues where required.

6 Outcomes of the Review

The purpose of the review of the PFRA is to review and, if necessary, update the assessment of flood risk nationally and the APSFRs for the 3rd cycle of implementation of the 'Floods' Directive. This has been achieved through the identification and consideration of flood risk at various locations through the three approaches set out in the preceding sections.

6.1 Designation of APSFRs

6.1.1 STATUS OF THE APSFRS

The APSFRs are the areas where it is determined that potential significant flood risks exist or might be considered likely to occur, and are areas of flood risk that are nationally significant that may require intervention and assessment at a national-level.

It is not practical nor necessary to define as APSFRs all areas in Ireland where flood risk may exist. There will be areas where a degree of flood risk may exist, but where this risk can be addressed through:

- Local measures, such as works undertaken by the local authority with funding provided by the OPW under the Minor Flood Mitigation Works and Coastal Protection Scheme (the Minor Works Scheme), or,
- Measures that are applicable nationally, such as flood risk prevention (e.g., the application of sustainable planning) or preparedness and resilience (e.g., the development of a flood forecasting and warning service and the enhancement of emergency response and individual and community resilience).

It should be noted that, while flooding of one home will be traumatic to the owner or residents of that home, the PFRA needs to consider what is nationally or regionally significant.

It is stressed that locations that are not designated as APSFRs, but that are nonetheless at some risk from flooding, can benefit from local flood risk management measures and national funding. The Minor Works Scheme, introduced in 2009, is included in the Flood Risk Management Plans as a measure that is applicable in all areas. The Scheme is specifically targeted at the provision of OPW funding for local measures to address local flood risk problems that do not require intervention at the national level, i.e., areas that are not designated as APSFRs. Areas where the flood risk is of a scale that potential solutions are within the threshold of the Minor Works Scheme can progress necessary local flood management works through this wider measure, and so will not be designated specifically as an APSFR.

Flood risk can arise in almost all areas affecting areas of agricultural land, rural roads and one-off housing, as can occur within all of the floodplains throughout the country. Large areas of dispersed, low-density risk, such as whole catchments or long reaches of floodplain, are not being designated as APSFRs as national-level, specifically focussed interventions, such as flood relief schemes, would not be appropriate for such areas. The 'Measures Applicable for all Areas', as set out in the FRMPs, can be applied in these areas to manage the flood risk that may exist. The APSFRs are rather being defined as areas of concentrated flood risk where specifically focussed interventions may be required and are feasible.

6.1.2 DEFINITION OF SIGNIFICANT RISK

It is not possible based on the PFRA, which is a preliminary assessment at a national scale based on available and readily-derivable information, to determine definitively the quantum of flood risk in all areas of the country. It is rather a broad-scale assessment, based on available or readily-derivable information, to identify where there is an area at flood risk that that is nationally or regionally significant.

A highly prescriptive definition of significant risk is therefore not appropriate, given the preliminary nature of the PFRA and as detailed assessments of risk are not available for many parts of the country. The assessment of significant flood risk instead needs to consider, in combination, the information identified and the outcomes of all the approaches used.

6.2 Assessment of Historic Flooding

Records were collated for 701 flood events that occurred during the relevant period. Property flooding was recorded for 208 of these events, with a total of 1,820 properties reported as having flooded, with approximately three-quarters of the properties flooded being within the existing APSFRs. 481 of the properties (26% of the total) that flooded were in events that occurred in areas outside of communities designated as APSFRs in the previous cycle.

As noted in Section 3.6, 14 flood events occurred during the period 2019-2024 where 20 or more properties were reported as having flooded, of which 10 occurred within areas designated as APSFRs during the 2nd Cycle PFRA. The assessment of the other four events that occurred outside of the areas designated as APSFRs with regards to possible designations or further assessments is set out below.

6.2.1 MOGEELY, CO. CORK (STORM BABET)

As described in Section 3.3, 46 properties flooded in Mogeely following the intense rainfall that occurred during storm Babet in October 2023. Given the severity of impacts of this flood, the risk in this area is considered to be significant. As Mogeely is only a short distance upstream of Castlemartyr, an existing APSFR, the Castlemartyr APSFR has been extended to include the village of Mogeely.

Ladysbridge, a village immediately downstream of Castlemartyr, was also affected during Storm Babet, with 17 properties flooded. Given that this village is subject to flood risk and is only a short distance downstream from Castlemartyr, the APSFR has been further extended to also include the village of Ladysbridge, to provide for an efficient assessment of the risk and potential mitigation options for the three communities together. Note however that, subject to the findings of that assessment, separate measures or schemes may be advanced for the different communities.

6.2.2 BRIDGETOWN, CO. WEXFORD

The village of Bridgetown was subject to severe flooding on Christmas day, 25th December 2021, when 27 properties were flooded. Bridgetown was also identified as an area of High FRI Score under the predictive assessment, with the local authority also advising that this community is subject to significant risk. Bridgetown has therefore been designated as an APSFR for this coming cycle.

6.2.3 KILLEAGH, CO. CORK (STORM BABET)

Storm Babet, that caused extensive flooding across Co. Cork, lead to the flooding of 26 properties in the community of Killeagh. This village was included as an Area for further Assessment under the CFRAM Programme, but was found to be at low risk under the CFRAM predictive assessment, and so was not included as an APSFR for the 2nd cycle. There is a discrepancy between the experience from Storm Babet and the predictive assessment. The extremity of that event and overland runoff (pluvial flooding) may have been significant factors in the flooding that occurred arising from Storm Babet. To address this matter, a detailed review of the flood mapping and risk for this community will be undertaken to fully understand the flooding mechanisms in this community and the degree of risk present. Killeagh will therefore not be designated as an APSFR at this time, but the designation will be reviewed upon completion of the detailed review and an assessment of actions required to manage the risk (which may be before the 4th cycle review of the PFRA). If measures are deemed to be required and feasible for Killeagh, these can be progressed through the appropriate route according to the scale of investment required.

6.2.4 KINVARRA, CO. GALWAY (STORM DEBI)

The coastal village of Kinvarra was flooded during the Storm Debi, when Galway Bay in particular was affected by a substantial surge and high waves generated from the low pressure and strong winds associated with that storm. Twenty-five properties are recorded as having flooded during the event.

Kinvarra was assessed under the CFRAM Programme, but found to have a relatively low level of flood risk, with the net present value damages calculated as being within the Minor Works Scheme threshold. As such, Kinvarra was not included as an APSFR for the 2nd cycle.

On foot of Storm Debi, Galway County Council have commissioned a study, with funding provided through the OPW Minor Works Scheme, to further analyse the effects of the storm on Kinvarra and other communities around Galway Bay, including Oranmore, Clarinbridge and Kilcolgan where 15, 11 and 9 properties respectively were reported to have flooded. This study will review the potential flood extents and impacts for these communities and assess possible measures to manage the risk.

As the flood risk in Kinvarra (and other communities around the Bay) is being assessed under a study funded through the Minor Works Scheme, Kinvarra has not been designated as an APSFR at this time. The designation will however be reviewed upon conclusion of the study.

6.2.5 CULTURAL HERITAGE AND THE ENVIRONMENT

As noted in Section 3.4, there is no specific information available indicating significant detrimental impacts to the environment or cultural heritage caused by flooding over the relevant period.

6.2.6 ARTIFICIAL WATER-BEARING INFRASTRUCTURE

As noted in Section 3.5, there were no significant past flood events arising from AWBI over the relevant period.

6.3 Assessment of the Predictive National Flood Risk Assessment (PNFRA)

The methodology for the PNFRA is set out in Section 4, and the areas of High FRI Score, as described in Section 4.4, were reviewed in terms of the flood mapping, to see if the predictive extents seemed reasonable. Each of these areas were also examined as part of the consultation workshops with the local authorities, to assess the areas in the context of the past flood events records and local knowledge and experience of the area.

6.3.1 REVIEWS OF FLOOD MAPS

The review of the flood maps, as used for the PNFRA, has indicated that while the NIFM flood extents generally appear to be reasonable, in certain areas these maps (Section 1.4) may not reflect the probable actual flooding due to the assumptions and methodology required for such a national indicative flood mapping project. For example, it would appear that at the junction of some particular tributaries into a main river, the water level at the downstream end of the tributary appears to be elevated above what realistically might be expected, leading to excessive flooding being shown. In other cases, it is clear from aerial imagery that channels through some communities have been engineered and are likely to have a capacity above that assumed in the NIFM methodology, leading to flood extents that do not align with past flood experience or local knowledge.

For areas where such potential anomalies have been identified, a more detailed assessment of the NIFM maps will be undertaken to assess if there are potential errors in the mapping process, and to resolve these and update the maps, where appropriate. For such areas where the NIFM extents may indicate limited flood risk, but where there is other evidence indicating that numerous properties may be at risk, then more detailed flood mapping will be undertaken to assess the risk in more detail, and such areas may subsequently be designated as APSFRs.

For a small number of other areas assessed under the CFRAM Programme, the review of the PFRA has indicated that conditions may have changed locally, and flood map reviews will be undertaken for these areas.

6.3.2 IMPACTS OF CLIMATE CHANGE

The PNFRA included an assessment of the flood risk that could arise due to the potential impacts of climate change for fluvial and coastal flooding. As indicated in Section 2.3, it is not considered necessary at this time to designate as APSFRs, areas currently at low risk but that could be subject to significant risk under future scenarios, given that the risk will evolve gradually over a number of decades, and the cyclical review of the PFRA and APSFRs on the 6-yearly basis.

Notwithstanding this, the assessment of potential future risk under the PNFRA does identify the degree of risk that particular communities could be exposed to in the future under different scenarios, and hence different indicative timelines. It is intended, on foot of this information, that more detailed assessments of risk be undertaken on a timely basis, i.e., ahead of the significant risks actually developing, so that the risk can be managed and addressed proactively, rather than when events occur.

A description of the identification of potential future risk in communities, and the intended next steps of assessment are described in further detail in Section 7.

6.4 Assessment of Consultation Outcomes

The consultation undertaken for the 3rd cycle review of the PFRA is outlined in Section 5.

The consultation workshops and subsequent dialogue with the local authorities provided input to the assessment of significant flood risk in combination with the assessment of historical floods and the PNFRA outcomes.

Information on pluvial flood risk and extents and the past experience or perceived significance of impacts was specifically sought during these workshops, noting that this was not included in the predictive assessment. No additional APSFRs were identified by the local authorities arising from pluvial flooding.

6.5 Flood Relief Schemes

In line with the criteria applied for previous cycles of the PFRA, communities that already benefit from major flood relief schemes built by the OPW or the Local Authorities will maintain their APSFR designations. The communities that were designated as APSFRs in the second cycle PFRA, and where measures were included in the FRMPs to progress project-level assessments for flood relief schemes, have been maintained as APSFRs for the 3rd cycle.

The OPW, in conjunction with the local authorities have commenced or are undertaking flood relief schemes for some areas that were not previously identified as APSFRs in the 2nd cycle, as outlined below. These projects involve a degree of investment at a national level greater than the threshold for the Minor Works Scheme, as so have been designated as APSFRs.

6.5.1 BELLURGAN, CO. LOUTH:

The area of Bellurgan, to the Northeast of Dundalk, comprises low-lying land that is protected from coastal inundation by an embankment. Maintenance and minor rehabilitation works have been undertaken to the embankment in the past, funded under the Minor Works Scheme. More comprehensive works have since been undertaken, comprising raising and widening of the existing embankment together with crest and back slope armouring over the full length, to provide protection against a 200-Year coastal flood event (0.5% AEP) for 38 properties.

6.5.2 MARLFIELD, CO. TIPPERARY:

Marlfield is a manmade lake, dating back to the 18th century. The lake has over-topped the dam on numerous occasions in recent years during periods of persistent or heavy rainfall, that lead to significant fluvial inflows to the lake. This over-topping has caused significant damage to some properties downstream of the lake, and a collapse of the dam could cause catastrophic flooding for the properties downstream that would pose a risk to life. A project has commenced, led by Tipperary County Council and funded by the OPW, to assess and implement solutions to reduce the flood risks to the properties downstream.

6.5.3 BALLINHASSIG, CO. CORK:

The flood hazard and risk in Ballinhassig was initially assessed through the pilot Lee CFRAM Study, which did not identify significant flood risk, and this community was not subsequently identified as an APSFR. Further local assessments have however since been undertaken that identified the need for flood protection, and a flood relief scheme is currently under development.

6.5.4 LOUGH FUNSHINAGH, CO. ROSCOMMON:

Lough Funshinagh is a turlough, where the lake has filled and then drained on a cyclical and seasonal basis in the past. Since 2016 however, the lake has not drained in the normal manner, with lake levels rising above normal peak levels. The rainfall in 2023 was 130% above the annual average, and levels at Lough Funshinagh reached a new record level in April 2024, approximately 3.4m higher than the average levels and this excess is spreading across some 175 hectares of lands.

The lake levels now pose a significant threat to eight properties, approximately 300 hectares of farmland and a number of local and regional roads, potentially isolating communities and hindering emergency response efforts, and is posing a public safety issue to people in the area. It is considered that if the lake continues to rise, it could overflow its local basin and flood the nearby village of Curraghboy. Unlike floods from rivers and the sea, the flooding around Lough Funshinagh is of exceptional duration and has become a permanent threat to the area.

Temporary works have commenced to address the flood risk associated with the turlough, with the development of a permanent solution underway.

6.5.5 ROSSLARE, CO. WEXFORD

Rosslare in County Wexford is subject to both coastal erosion and flooding, and a joint coastal erosion and flood relief project is underway for the community.

6.5.6 OTHER AREAS

Two communities where measures were included for the progression of a flood relief scheme are Dungarvan and Ringphuca in Co. Waterford. As these communities are immediately adjacent, these two APSFRS have been merged into one, with a single project progressed to assess the development of a flood relief.

A similar approach will be taken with regards to Inchigeelagh and Ballingeary, Co. Cork, which are two APSFRs that are a short distance apart on the same watercourse, and for which a single project is foreseen, and that have now been merged into one. Note however that, subject to the outcomes of the assessment, flood relief works for these communities could be taken forward as either joint or separate schemes.

Flood relief works had been undertaken for the community of Freemount, Co. Cork, in the past. These works were however of a minor nature, and would not qualify as a major flood relief scheme if undertaken now, and so this community will not be designated as an APSFR for the 3rd cycle.

A measure to progress flood relief works in Carysfort – Maretimo, Dun Laoghaire Rathdown, was identified in the FRMPs. This area was included in the Dublin City APSFR in the 1st cycle, but has now been extracted and maintained as a separate APSFR.

For a small number of communities, as listed below, further assessments have been undertaken of the risk that has been found to be within the threshold of the Minor Works Scheme, and/or some local works have been undertaken to reduce the risk. These communities have not been included as APSFRs for the 3rd cycle, but reviews of the flood maps will be undertaken to reflect the current situation.

- Little Island, Co. Cork
- Mullinahone, Co. Tipperary
- Balgriffin, Co. Fingal

6.6 Scheme Viability Reviews

Options to manage the flood risk in the communities designated as APSFRs in the 1st cycle, and for which the risk was confirmed as being significant through more detailed analysis, were examined under the CFRAM Programme. For some communities, a technically viable flood relief scheme would have been identified, but the economic appraisal of that scheme indicated that the potential scheme was not economically viable, i.e., it had a benefit to cost ratio below one. As the CFRAM Programme was a strategic programme, it was recognised that the estimates of costs and benefits of a scheme were only indicative, and it was considered appropriate to examine such schemes in further detail to review whether a viable scheme could be identified.

Measures were included in the FRMPs for these reviews, referred to as 'Scheme Viability Reviews'. These reviews have since been progressing, and many have now been completed.

For those communities where the Scheme Viability Review has indicated that a potentially viable scheme has been identified, a project to progress the development, design and assessment of a scheme has been included in the capital flood relief delivery programme. These communities, as listed below, have been retained as APSFRs.

- Annagassan, Co. Louth
- Bettystown – Laytown, Co. Meath
- Mountrath, Co. Laois
- Moville, Co. Donegal
- Portmarnock, Co. Fingal
- Rush, Co. Fingal
- Termonfeckin, Co. Louth
- Westport, Co. Mayo

A viable scheme has also been identified for Malahide, Co. Fingal. The cost of this scheme is within the scope of the Minor Works Scheme, and so may be progressed under the Scheme, and this community has not been retained as an APSFR for the 3rd cycle.

Communities where the Scheme Viability Review has indicated that a potentially viable scheme is not available, but where the degree of risk would require investment beyond the scope of the Minor Works Scheme, have been retained as APSFRs. Alternative measures for managing and reducing the flood risk in these communities will be assessed in the preparation of the 3rd cycle FRMPs. These communities are:

- Aughrim, Co. Wicklow
- Bunbeg-derrybeg, Co. Donegal
- Callan, Co. Kilkenny
- Castledermot, Co. Kildare
- Foxford, Co. Mayo
- Golden, Co. Tipperary
- Navan, Co. Meath
- Newcastle, Co. Wicklow
- Suncroft, Co. Kildare

There are some communities where the Scheme Viability Review has indicated that a potentially viable scheme is not available, and that the degree of risk is such that any works that could address the risk would require investment that is within the scope of the Minor Works Scheme. The analysis under the Scheme Viability Review applies the full cost benefit analysis (as is used for OPW flood relief schemes) for options that would provide the national target standard of protection for all properties at risk within the community. Alternative measures, offering some protection or reduction of flooding, and/or addressing some of the area at risk, may be eligible for funding under the Minor Works Scheme. It is proposed that such measures for these communities be examined by the local authorities to assess whether a Minor Works application might be brought forward. As the degree of risk in these communities is below the threshold for the Minor Works Scheme, these communities have not been designated as APSFRs for the 3rd cycle. These communities are:

- Ahascragh, Co. Galway
- Coolaney, Co. Sligo
- Corrofin, Co. Galway
- Kilcoole, Co. Wicklow
- O'Briens Bridge & Montpelier, Co. Clare / Limerick
- Rathkeale, Co. Limerick
- Swinford, Co. Mayo

The remaining Scheme Viability Reviews are ongoing, and the relevant communities, as listed below, have been included as APSFRs for the 3rd cycle.

- Cobh, Co. Cork
- Convoy, Co. Donegal
- Dunmanway, Co. Cork
- Glenflesk, Co. Kerry
- Kilkenny (Breagagh), Co. Kilkenny
- Louisburgh, Co. Mayo
- Portlaoise, Co. Laois
- Skerries, Co. Final

6.6.1 DISPERSED RURAL RISK BEHIND ARTERIAL DRAINAGE EMBANKMENTS

There are a number of embankments that were built as part of an Arterial Drainage Scheme or that were taken in hand by the OPW through the Land Commission that are now maintained, and that were intended to protect agricultural land against flooding. Many of these embankments are protecting the land against tidal flooding, such as around the Shannon Estuary, while others are in-land, such as the embankments along the River Feale downstream of Listowel. Within the protected lands are dispersed rural communities and one-off housing that benefit from some degree of protection by the embankments against flooding.

The embankments were intended to protect agricultural land and were not built to the standards that would be required for a flood protection scheme. While routine inspections and maintenance works are undertaken, this would be in the context of their benefit to agricultural land. The embankments, particularly in the context of the potential impacts of climate change and rising sea levels, may be prone to failure and consequential flooding of lands, and the rural communities behind.

Given the nature of the risk, it would not be appropriate to designate these large areas of dispersed risk as APSFRs, as noted in Section 6.1.1. Ongoing assessment of the condition and performance of the embankments, taking into account rising sea levels and other potential impacts of climate change and also the location of housing and development behind the embankments, is required to inform a rehabilitation and upgrade programme of works for the embankments that are maintained by the OPW, as and where appropriate. The assessment would also identify embankments that are not the responsibility of the OPW, which would require investigation with regards to their ownership and maintenance responsibility.

6.7 OPW Minor Flood Mitigation Works and Coastal Protection Scheme

As noted above, locations that are not designated as APSFRs, but that are nonetheless at some risk from flooding, can benefit from local flood risk management measures and national funding through the OPW Minor Flood Mitigation Works and Coastal Protection Scheme. The OPW have identified areas where local measures might be suitable, and have communicated these to the relevant local authorities for their consideration.

6.8 Artificial Water-Bearing infrastructure

The review of the PFRA with regards to flood risk from Artificial Water-Bearing infrastructure has concluded that no additional APSFRs have been identified with regards to this potential source of flooding.

6.9 Conclusions

The review of the PFRA has included a review of the situation with regards to those communities previously designated as APSFRs and an assessment nationally as to whether new areas should be designated as APSFRs based on the past flooding records, a predictive assessment of risk and consultations with key stakeholders and the public. The review has concluded that 194 areas are designated as APSFRs for the 3rd cycle, as listed in Appendix B.

7 Climate Change

Article 14(4) of the 'Floods' Directive requires that, in the second and subsequent cycles of implementation, the likely impact of climate change on the occurrence of floods shall be taken into account in the Review of the PFRA.

7.1 Climate Change Sectoral Adaptation Plan for Flood Risk Management

The OPW prepared the first Climate Change Sectoral Adaptation Plan for Flood Risk Management in 2015. The Climate Action and Low Carbon Development Act, 2015, and the National Adaptation Framework, 2018, required the OPW to prepare a new Sectoral Adaptation Plan for Flood Risk Management by the end of September 2019.

The OPW published a draft Plan in July 2019, and submitted the final Plan for consideration by Government in September 2019. Government approved the Plan in October 2019.

The Plan sets out a long-term goal for adaptation in flood risk management, along with a set of objectives and adaptation actions aimed at achieving those objectives. The long-term goal adopted by the OPW on climate adaptation for flooding and flood risk management is:

> *"Promoting sustainable communities and supporting our environment through the effective management of the potential impacts of climate change on flooding and flood risk."*

To deliver on this goal, the OPW has identified the following adaptation objectives:

- Objective 1: Enhancing our knowledge and understanding of the potential impacts of climate change for flooding and flood risk management through research and assessment
- Objective 2: Adapting flood risk management practice to effectively manage the potential impact of climate change on future flood risk
- Objective 3: Aligning adaptation to the impact of climate change on flood risk and flood risk management across sectors and wider Government policy

A new National Adaptation Framework was published in June 2024. This maintains flood risk management as one of the sectors for which Sectoral Adaptation Plans are required, with revised Sectoral Adaptation Plans due for completion in September 2025.

7.2 Flood Hazard for Future Scenarios

7.2.1 DEFINING FUTURE SCENARIOS

There is a wide range of projections of future changes in the climatic drivers of flooding due to a number of factors, including:

- emission scenario projections into the future,
- different models used to simulate how the emissions projections will impact the future climate, and,
- different parameter sets used in each of the models.

While there is a very high level of confidence that the mean sea level is rising and that the rate of rise has accelerated over recent decades, and that mean sea levels will continue to rise over the coming decades and probably centuries, it is not known at what rate this ongoing rise will occur into the future. There is also considerable uncertainty over the potential changes into the future in local, short-duration extreme rainfall patterns, which are most relevant to the fluvial and pluvial flooding.

Given this uncertainty, it is clearly not possible to state with confidence exactly what the future will look like in terms of the frequency or severity of flood events. To decide on selecting one single scenario, i.e., a specific degree of sea level rise and a defined increase in peak flood flows and rainfall intensities, and to design flood defences for this specific scenario could well give rise to 'maladaptation'. This is where works are undertaken that in due course prove to be inadequate, due to a worse than expected future, or where excessive investment is made to provide for a future that is more extreme than what actually occurs.

It is not feasible to assess the potential impacts and implications of all of the future climate projections on flooding in Ireland. The OPW has therefore adopted two indicative potential futures for flood risk assessment; the Mid-Range Future Scenario (MRFS) and the High-End Future Scenario (HEFS). These were selected to reflect, based on information available at the time, a future in the latter part of the century that would be:

a) typical or near to the general average of the future climate projections (MRFS), and,
b) a more extreme future based on the upper end of the range of projections of future climatic conditions and the impacts such changes would have on the drivers of flood risk (HEFS).

The changes in flood-related parameters under each scenario are set out in Table 3. The allowances set out were not derived from a specific set of projections from the IPCC reports, but were rather, based on a range of sources available at the time.

It can be seen that the allowances for the MRFS and HEFS for mean sea level rise would be close to the average and the top end of the recent projections from the IPCC 6th Report (AR6) respectively. The scenarios also lie mid-range and at the upper end of the projections of sea level rise in the IPCC 1.5°C report (IPCC, 2018). Research on the application of the scenario-neutral approach for flood risk management (Broderick et al., 2017) indicates that allowances for change in peak flood flows also cover the significant majority of projected changes (based on the Coupled Model Inter-comparison Project 5, or 'CMIP5' ensemble) for the catchments tested and across the four Representative Conception Pathways (emissions scenarios).

For the purposes of considering potential future costal inundation, two further, more extreme scenarios were adopted with regards to future mean sea level rise, the High+ and High++ future Scenarios, which include a rise in mean sea level of 1.5m and 2.0m respectively. These reflect the upper bounds of the current IPCC projections that provide for a low-likelihood, high-impact projection that includes for ice-sheet instability processes under the high emissions scenario (SSP5-8.5).

It is important to reiterate, however, that the future scenarios are not intended to represent specific projections and model outcomes, but rather provide potential, or 'representative' futures. As such, they are not specifically time-bound, but could be taken, where a time-line is required, to represent possible futures for 2100.

Table 3: Allowances in Flood Parameters for the Mid-Range and High-End Future Scenarios

Parameter	MRFS	HEFS
Extreme Rainfall Depths	+ 20%	+ 30%
Peak Flood Flows	+ 20%	+ 30%
Mean Sea Level Rise	+ 500 mm	+ 1000 mm
Land Movement	- 0.5 mm / year[1]	- 0.5 mm / year[1]
Urbanisation	*No General Allowance – Review on Case-by-Case Basis*	*No General Allowance – Review on Case-by-Case Basis*
Forestation	- 1/6 Tp[2]	- 1/3 Tp[2] + 10% SPR[3]

Note 1: Applicable to the southern part of the country only (Dublin – Galway and south of this)

Note 2: Reduction in the time to peak (Tp) to allow for potential accelerated runoff that may arise as a result of drainage of afforested land

Note 3: Add 10% to the Standard Percentage Runoff (SPR) rate: This allows for temporary increased runoff rates that may arise following felling of forestry.

The OPW future scenarios describe potential futures that permit flood hazard and risk assessments to be undertaken to identify possible impacts of climate change on flooding, which, in turn, enables an assessment of the vulnerability of different communities and areas around the country to such possible changes. This will inform how flood risk in these communities should be managed now and into the future.

7.2.2 THE CFRAM PROGRAMME

The flood mapping developed under the CFRAM Programme included the preparation of maps for the MRFS and HEFS, for a range of flood event probabilities, as well as for the present-day conditions.

The CFRAM flood maps, including for the future scenarios, are available to view through the OPW flood information portal; www.floodinfo.ie.

7.2.3 THE NATIONAL INDICATIVE FLOOD MAPPING

The national indicative flood mapping, including the NIFM and NCFHM flood maps, include maps prepared for the MRFS and HEFS, which are also available to view through the OPW flood information portal. Flood maps for the H+ and H++FS with regards to coastal flooding were also prepared under the NCFHM.

7.3 Assessment of Risk for Future Scenarios

The flood risk associated with the MRFS and HEFS was calculated for the communities assessed under the CFRAM programme, with this information provided in the FRMPs.

For the 3rd cycle review of the PFRA, an assessment of risk under the future scenarios has been undertaken as part of the predictive assessment, making use of the CFRAM, NIFM and NCFHM mapping for the MRFS and the HEFS. This assessment identifies how the flood risk may evolve

into the future for areas already at risk, but also for other areas that may be at relatively low risk at present, but where the risk could become significant into the future.

7.3.1 MANAGING AND ADAPTING TO FUTURE RISK IN THE APSFRs

A number of APSFRs are communities that already benefit from protection provided by flood relief schemes. The design and development of these schemes, in particular the earlier schemes, may not have assessed the potential impacts of climate change or included assumptive allowances or provision for adaptation as part of their design. The OPW has commenced a programme to review the existing flood relief schemes to determine how climate change might affect the standard of protection into the future, and what adaptation measures might be effective to maintain the standard of protection.

The design process for new flood relief schemes, including those arising from the measures set out in the FRMPs, includes the consideration of climate change as a requirement under the project brief, including the preparation of a scheme adaptation plan. This is with the aim of ensuring that all new schemes provide for potential future increases in flood levels and/or flows as part of the design process. This can be provided for in terms of what level of protection is provided during the initial construction and/or through the design of the scheme in such a way to facilitate any future adaptation that may be necessary.

7.3.2 MANAGING FUTURE RISK IN OTHER AREAS

Areas that are not designated as APSFRs would not currently be exposed to significant flood risk. For some areas however, the risk may become significant in the future.

It is not necessary to develop and implement now measures that may be required in the future to address a degree of flood risk that may only develop towards the latter part of the century. To do so would unnecessarily draw on today's public resources, but also has a significant risk of maladaptation, where what is developed and implemented may not be appropriate for the way flood risk actually evolves under climate change.

While designing and implementing measure today for a risk that may develop in the future is not necessary, it is prudent to more fully assess how climate change could impact flood risk in areas where, based on the preliminary level of assessment of the PNFRA, there is an indication that flood risk could become significant in the future.

The PNFRA has examined areas where the flood risk could become significant in the future based on the number of properties assessed as being at risk under both the MRFS and the HEFS. The number of properties indicates the degree of risk, while the two scenarios can be seen as different timelines, where it is expected that climate change will develop initially up to the MRFS, and then later in time potentially on to the HEFS. As such, areas where the degree of risk is highest in the MRFS would be the areas where more significant impacts could be expected in the medium-term. For areas where the risk remains low in the MRFS, but becomes significant in the HEFS, it is expected that climate change will only lead to major flooding problems in the long-term, such as towards the end of this century.

7.3.3 NEXT STEPS

For areas that were assessed under the CFRAM Programme, but where the current risk was found to be low, the potential future flood risk would already have been assessed in detail with corresponding flood maps prepared.

For areas not covered by the CFRAM Programme, the assessment would only have been undertaken to date based on the national indicative flood mapping. It is therefore intended to undertake detailed assessments of the potential future flood risk in the areas not covered by the CFRAM Programme on a prioritised basis according to the degree of potential future risk and the timeline for when that risk might develop (i.e., whether under the MRFS or the HEFS). These detailed assessments will provide a more robust understanding of the potential impacts of climate change on flood risk in each of the relevant communities, and also provide the basis for the assessment and design of adaptation measures, when required.

The evolution of the impacts of climate change will be monitored on an ongoing basis into the future, including through reviews and updates of the Climate Change Sectoral Adaptation Plan for Flood Risk Management and through future reviews of the PFRA. Monitoring will be undertaken by analysis of rainfall and hydrometric records to assess trends and change, but also through general national and international climate change indicators, such as mean temperature records.

Monitoring of these records will inform estimates of the rate of actual progression of climate change, that in turn can inform projections of the rate of change into the future, and hence provide timelines as to when adaptation measures might be required. A period for design, planning and implementation can be estimated to identify when, ahead of the point in time when the risk would become significant, an assessment and design process for adaptation measures should begin.

Appendix A – Record of Number of Properties Flooded during Past Floods

Note: This table lists the flood events for which the OPW has collated or received relevant information and may not be exhaustive with regards to every flood that occurred during the relevant period (2019-2024).

County	Location	Start Date	2nd Cycle APSFR	Source of Flooding	No. of Properties Flooded
Carlow	Ballyloos	Recurring	N	Fluvial	1
Carlow	Ballyteighlea	31/10/2022	N	Pluvial	1
Carlow	Carlow	25/12/2021	Y	Fluvial	1
Carlow	Carlow	31/10/2022	Y	Fluvial	1
Carlow	Killedmond	25/12/2021	N	Pluvial	1
Carlow	Leighlinbridge	31/10/2022	Y	Fluvial	1
Carlow	Rathvilly	31/08/2023	N	Fluvial / Pluvial	1
Carlow	Bagenalstown	15/08/2022	N	Pluvial	0
Carlow	Mullagaun	25/12/2021	N	Fluvial	0
Carlow	Tullow	25/12/2021	Y	Fluvial	0
Carlow	Tullow	15/08/2022	Y	Pluvial	0
Cavan	Kilmore	28/10/2022	N	Pluvial	9
Cavan	Cavan	16/10/2022	Y	Fluvial / Pluvial	6
Cavan	Cavan	28/10/2022	Y	Pluvial	5
Cavan	Cavan	05/08/2023	Y	Fluvial / Pluvial	1
Cavan	Cavan Town	22/11/2024	Y	Fluvial / Pluvial	0
Cavan	Kilgarry	28/10/2022	N	Pluvial	0
Clare	Ballyryan	Recurring	N	Unknown	4
Clare	Ballyvaughan	Recurring	N	Unknown	4
Clare	Ennis	Recurring	Y	Fluvial	3
Clare	Kilkee	14/10/2019	Y	Coastal / Tidal	3
Clare	Mortyclogh	Recurring	N	Fluvial	3
Clare	Ennis	Recurring	Y	Fluvial	2
Clare	Moveen	14/10/2019	N	Pluvial	2
Clare	Quin	Recurring	N	Fluvial	2
Clare	Ayle	22/11/2024	N	Unknown	0
Clare	Ballydinneen	22/11/2024	N	Unknown	0
Clare	Ballyvaughan	22/11/2024	N	Unknown	0
Clare	Caherfeenick	22/11/2024	N	Unknown	0
Clare	Carron	22/11/2024	N	Unknown	0
Clare	Carrowreagh	22/11/2024	N	Unknown	0
Clare	Coolreagh	22/11/2024	N	Unknown	0
Clare	Core	22/11/2024	N	Unknown	0
Clare	Corofin	22/11/2024	N	Unknown	0
Clare	Derrainy	22/11/2024	N	Unknown	0

County	Location	Start Date	2nd Cycle APSFR	Source of Flooding	No. of Properties Flooded
Clare	Doolin	22/11/2024	N	Unknown	0
Clare	Drumellihy	22/11/2024	N	Unknown	0
Clare	Ennis	20/02/2020	Y	Fluvial	0
Clare	Ennis	02/11/2022	Y	Fluvial	0
Clare	Ennis	22/11/2024	Y	Fluvial	0
Clare	Ennis	Recurring	Y	Fluvial	0
Clare	Inagh	22/11/2024	N	Unknown	0
Clare	Kildysart	Recurring	N	Unknown	0
Clare	Kilkee	22/11/2024	Y	Fluvial	0
Clare	Kiltannon	22/11/2024	N	Unknown	0
Clare	Lahinch	22/11/2024	N	Unknown	0
Clare	Leminagh	22/11/2024	N	Unknown	0
Clare	Liscannor	22/11/2024	N	Unknown	0
Clare	Moanreel	22/11/2024	N	Unknown	0
Clare	Moveen West	Recurring	N	Unknown	0
Clare	Quilty	22/11/2024	N	Unknown	0
Clare	Quin	22/11/2024	N	Unknown	0
Clare	Shragh	22/11/2024	N	Unknown	0
Clare	Springfield / Cloonlara	20/02/2020	Y	Fluvial	0
Clare	St Bridget's Well	22/11/2024	N	Unknown	0
Clare	Toberniddaun	22/11/2024	N	Unknown	0
Clare	Toomaghera	22/11/2024	N	Unknown	0
Cork	Midleton	18/10/2023	Y	Fluvial	681
Cork	Bantry	24/08/2020	Y	Fluvial	102
Cork	Cork City	19/10/2021	Y	Coastal	100
Cork	Mogeely	18/10/2023	N	Pluvial	46
Cork	Killeagh	18/10/2023	N	Pluvial	29
Cork	Bantry	07/12/2021	Y	Fluvial / Pluvial / Tidal	28
Cork	Carrigtwohill	18/10/2023	N	Fluvial / Pluvial	19
Cork	Ladysbridge	18/10/2023	N	Fluvial	17
Cork	Carrigaline	18/10/2023	Y	Pluvial	15
Cork	Rosscarbery	13/08/2020	N	Fluvial / Pluvial	15
Cork	Rosscarbery	15/08/2020	N	Fluvial / Pluvial	15
Cork	Raffeen	18/10/2023	N	Fluvial	13
Cork	Ballinspittle Village	08/02/2024	N	Pluvial	12
Cork	Castlemartyr	18/10/2023	Y	Pluvial	12
Cork	Carrigaline	18/08/2023	Y	Pluvial	11
Cork	Whitegate	17/10/2023	N	Pluvial	11
Cork	Carrigtwohill	20/10/2023	N	Fluvial / Pluvial	10

County	Location	Start Date	2nd Cycle APSFR	Source of Flooding	No. of Properties Flooded
Cork	Connonagh	15/08/2020	N	Fluvial	10
Cork	Youghal	18/10/2023	Y	Pluvial	10
Cork	Ballinhassig	18/10/2023	N	Fluvial / Pluvial	8
Cork	Riverstick	17/10/2023	N	Fluvial	7
Cork	Bandon	24/08/2020	Y	Pluvial	5
Cork	Glounthaune	18/10/2023	N	Pluvial	5
Cork	Bantry	27/10/2023	Y	Tidal	4
Cork	Dunmanway	25/08/2020	Y	Pluvial	4
Cork	Fermoy	18/10/2023	Y	Fluvial	4
Cork	Midleton	18/10/2023	Y	Pluvial	4
Cork	Bantry	26/12/2023	Y	Pluvial / Tidal	3
Cork	Bantry	01/01/2024	Y	Pluvial / Tidal	3
Cork	Killumney	27/09/2023	N	Fluvial / Pluvial	3
Cork	Monkstown	18/10/2023	N	Pluvial	3
Cork	Youghal	18/10/2023	Y	Fluvial	3
Cork	Aughavale	25/08/2020	N	Fluvial / Pluvial	2
Cork	Ballyhea	18/10/2023	N	Pluvial	2
Cork	Ballyvourney / Ballymakeera	22/11/2024	Y	Fluvial	2
Cork	Castlelyons	Recurring	N	Fluvial	2
Cork	Dunmanway	15/08/2020	Y	Pluvial	2
Cork	Durrus	25/08/2020	N	Fluvial	2
Cork	Glandore	17/10/2023	N	Pluvial	2
Cork	Killeagh	18/10/2023	N	Fluvial	2
Cork	Rathcormac	11/10/2023	Y	Fluvial / Pluvial	2
Cork	Skibbereen	17/10/2023	Y	Pluvial	2
Cork	Bantry	25/08/2020	Y	Tidal	1
Cork	Castletownbere	18/10/2023	Y	Pluvial	1
Cork	Cork City	26/11/2019	Y	Tidal	1
Cork	Drimoleague	13/08/2020	N	Fluvial / Pluvial	1
Cork	Drimoleague	15/08/2020	N	Fluvial / Pluvial	1
Cork	Drimoleague	25/08/2020	N	Fluvial / Pluvial	1
Cork	Dromore	25/08/2020	N	Fluvial / Pluvial	1
Cork	Dunmanway	15/08/2020	Y	Fluvial	1
Cork	Durrus	25/08/2020	N	Pluvial	1
Cork	Garryvoe	17/10/2023	N	Fluvial	1
Cork	Glanmire	18/10/2023	Y	Fluvial	1
Cork	Leap	17/10/2023	N	Fluvial	1
Cork	Ringaskiddy	17/10/2023	N	Pluvial	1
Cork	Rosscarbery	17/10/2023	N	Fluvial	1
Cork	Aherla	23/02/2021	N	Fluvial	0
Cork	Ardcahan	23/02/2021	N	Fluvial	0

County	Location	Start Date	2nd Cycle APSFR	Source of Flooding	No. of Properties Flooded
Cork	Ballincollig	19/02/2021	N	Fluvial	0
Cork	Ballincollig	20/02/2021	N	Fluvial	0
Cork	Ballincollig	05/10/2024	N	Unknown	0
Cork	Ballingeary	22/11/2024	Y	Fluvial	0
Cork	Ballintubber	18/08/2023	N	Groundwater / Pluvial	0
Cork	Ballydaly	23/02/2021	N	Fluvial	0
Cork	Ballynagarbragh	19/02/2021	N	Fluvial	0
Cork	Ballyvolane	18/08/2023	Y	Pluvial	0
Cork	Bantry	19/10/2020	Y	Tidal	0
Cork	Bantry	15/11/2020	Y	Tidal	0
Cork	Bantry	18/08/2023	Y	Tidal	0
Cork	Bantry	05/10/2024	Y	Fluvial	0
Cork	Beara	15/08/2020	N	Pluvial	0
Cork	Belgooly	18/10/2023	N	Fluvial	0
Cork	Blarney	23/02/2021	N	Fluvial	0
Cork	Blarney	18/10/2023	N	Pluvial	0
Cork	Bridgetown	23/02/2021	N	Pluvial	0
Cork	Carrigaline	13/10/2019	Y	Pluvial	0
Cork	Carrigaline	19/10/2020	Y	Tidal	0
Cork	Carrigaline	01/11/2020	Y	Pluvial	0
Cork	Carrigaline	11/11/2020	Y	Pluvial	0
Cork	Carrigaline	14/11/2020	Y	Tidal	0
Cork	Carrigaline	27/10/2021	Y	Pluvial	0
Cork	Carrigaline	16/10/2022	Y	Pluvial	0
Cork	Carrigaline	30/09/2023	Y	Pluvial	0
Cork	Carrigaline	17/10/2023	Y	Pluvial	0
Cork	Carrigrohane	22/02/2021	N	Fluvial	0
Cork	Clonakilty	18/08/2023	Y	Tidal	0
Cork	Clonakilty	Recurring	Y	Coastal	0
Cork	Cloughroe	11/11/2020	N	Pluvial	0
Cork	Coachford	23/02/2021	N	Fluvial	0
Cork	Connonagh	13/08/2020	N	Fluvial	0
Cork	Cork City	19/10/2020	Y	Tidal	0
Cork	Cork City	11/11/2020	Y	Pluvial	0
Cork	Cork City	14/11/2020	Y	Tidal	0
Cork	Cork City	15/11/2020	Y	Tidal	0
Cork	Cork City	23/02/2021	Y	Fluvial	0
Cork	Cork City	07/12/2021	Y	Tidal	0
Cork	Cork City	16/10/2022	Y	Pluvial	0
Cork	Cork City	30/10/2022	Y	Fluvial	0
Cork	Cork City	07/11/2022	Y	Coastal / Pluvial	0

County	Location	Start Date	2nd Cycle APSFR	Source of Flooding	No. of Properties Flooded
Cork	Cork City	18/08/2023	Y	Pluvial / Tidal	0
Cork	Cork City	19/08/2023	Y	Pluvial	0
Cork	Cork City	31/08/2023	Y	Coastal	0
Cork	Cork City	01/09/2023	Y	Coastal	0
Cork	Cork City	18/10/2023	Y	Coastal / Pluvial	0
Cork	Cork City	29/09/2024	Y	Pluvial	0
Cork	Cork City	05/10/2024	Y	Fluvial	0
Cork	Douglas	14/10/2019	Y	Pluvial	0
Cork	Dripsey	23/02/2021	N	Fluvial	0
Cork	Dromore	19/02/2021	N	Fluvial	0
Cork	Drumaclarig	05/10/2024	N	Fluvial	0
Cork	Dunmanway	18/08/2023	Y	Pluvial	0
Cork	Dunmanway / Enniskeane	23/02/2021	Y	Fluvial	0
Cork	Enniskeane	23/02/2021	N	Fluvial	0
Cork	Enniskeane / Ballineen	19/02/2021	N	Pluvial	0
Cork	Enniskeane / Coppeen	23/02/2021	N	Fluvial	0
Cork	Glanmire	17/08/2020	Y	Pluvial	0
Cork	Glanmire	11/11/2020	Y	Fluvial / Pluvial	0
Cork	Glanmire	23/02/2021	Y	Pluvial	0
Cork	Glanmire	18/08/2023	Y	Pluvial	0
Cork	Glasheen	18/08/2023	N	Pluvial	0
Cork	Kilcrea Abbey	19/02/2021	N	Fluvial	0
Cork	Killeagh	19/02/2021	N	Pluvial	0
Cork	Kilmountain	Recurring	N	Groundwater	0
Cork	Kinsale	19/10/2020	N	Tidal	0
Cork	Little Island	22/11/2024	Y	Fluvial	0
Cork	Mallow	19/02/2021	Y	Fluvial	0
Cork	Mallow	23/02/2021	Y	Fluvial	0
Cork	Mallow	08/04/2024	Y	Unknown	0
Cork	Mallow	22/11/2024	Y	Fluvial	0
Cork	Meadstown	29/09/2024	N	Pluvial	0
Cork	Meadstown	05/10/2024	N	Pluvial	0
Cork	Midleton	14/11/2020	Y	Tidal	0
Cork	Midleton	19/02/2021	Y	Fluvial	0
Cork	Midleton	07/12/2021	Y	Tidal	0
Cork	Midleton	16/12/2021	Y	Tidal	0
Cork	Midleton	18/08/2023	Y	Pluvial	0
Cork	Midleton	Recurring	Y	Tidal	0
Cork	Millstreet	23/02/2021	N	Fluvial	0
Cork	Mogeely	Recurring	N	Fluvial	0

County	Location	Start Date	2nd Cycle APSFR	Source of Flooding	No. of Properties Flooded
Cork	Monkstown	19/10/2020	N	Tidal	0
Cork	Passage West	19/10/2020	N	Tidal	0
Cork	Rathbarry	15/08/2020	N	Fluvial	0
Cork	Rathcoole	23/02/2021	N	Fluvial	0
Cork	Rathcormac	18/10/2023	Y	Pluvial	0
Cork	Riverstick	22/11/2024	N	Fluvial	0
Cork	Rosscarbery	18/10/2023	N	Pluvial	0
Cork	Skibbereen	19/08/2020	Y	Pluvial	0
Cork	Skibbereen	24/08/2020	Y	Pluvial	0
Cork	Timoleague	19/10/2020	N	Tidal	0
Cork	Timoleague	14/11/2020	N	Tidal	0
Cork	Timoleague	18/08/2023	N	Tidal	0
Cork	Toonsbridge	23/02/2021	N	Fluvial	0
Cork	Walshtown	19/02/2021	N	Unknown	0
Cork	Youghal	19/10/2020	Y	Tidal	0
Cork	Youghal	07/12/2021	Y	Pluvial	0
Cork	Youghal	18/08/2023	Y	Pluvial	0
Donegal	Donegal	04/10/2019	Y	Fluvial / Pluvial	31
Donegal	Killybegs	22/11/2024	Y	Fluvial	24
Donegal	Moville	23/07/2022	Y	Pluvial	4
Donegal	Rathmelton	22/03/2023	Y	Tidal	3
Donegal	Ardara	22/11/2024	N	Unknown	0
Donegal	Ballintra	04/10/2019	N	Unknown	0
Donegal	Ballybofey / Stranorlar	30/08/2019	Y	Pluvial	0
Donegal	Ballybogan	21/01/2024	N	Fluvial	0
Donegal	Bruckless	22/11/2024	N	Unknown	0
Donegal	Bundoran	04/10/2019	N	Unknown	0
Donegal	Bundoran	22/11/2024	N	Unknown	0
Donegal	Carrick	22/11/2024	N	Unknown	0
Donegal	Carrickfinn	22/03/2023	N	Coastal	0
Donegal	Castlefinn	12/01/2023	Y	Fluvial	0
Donegal	Castlefinn	22/07/2023	Y	Pluvial	0
Donegal	Convoy	22/07/2023	Y	Pluvial	0
Donegal	Coshclady	30/08/2019	N	Pluvial	0
Donegal	Creeslough	30/08/2019	N	Pluvial	0
Donegal	Donegal	04/10/2019	Y	Fluvial	0
Donegal	Donegal	07/12/2021	Y	Fluvial	0
Donegal	Donegal	22/03/2023	Y	Coastal	0
Donegal	Donegal Town	22/11/2024	Y	Unknown	0
Donegal	Drumfergus	22/07/2023	N	Pluvial	0
Donegal	Dunkineely	22/11/2024	N	Unknown	0

County	Location	Start Date	2nd Cycle APSFR	Source of Flooding	No. of Properties Flooded
Donegal	Frosses	04/10/2019	N	Unknown	0
Donegal	Glenswilly	04/09/2022	N	Fluvial	0
Donegal	Glenties	30/08/2019	Y	Pluvial	0
Donegal	Greencastle	23/07/2022	N	Pluvial	0
Donegal	Gweedore	30/08/2019	N	Pluvial	0
Donegal	Kilcar	04/10/2019	N	Fluvial / Tidal	0
Donegal	Killygordon	22/07/2023	N	Pluvial	0
Donegal	Laghey	04/10/2019	N	Unknown	0
Donegal	Letterkenny	30/08/2019	Y	Pluvial	0
Donegal	Letterkenny	22/03/2023	Y	Coastal / Fluvial	0
Donegal	Letterkenny	22/07/2023	Y	Pluvial	0
Donegal	Liscooley	22/07/2023	N	Pluvial	0
Donegal	Pettigo	22/11/2024	N	Unknown	0
Donegal	Quigleys Point	23/07/2022	N	Pluvial	0
Donegal	Raphoe	22/07/2023	Y	Pluvial	0
Donegal	Redcastle	23/07/2022	N	Pluvial	0
Dublin	Clontarf	05/08/2023	Y	Pluvial	17
Dublin	Cornelscourt	21/08/2021	Y	Pluvial	1
Dublin	Dundrum	21/08/2021	Y	Pluvial	1
Dublin	Leopardstown	20/06/2023	Y	Pluvial	1
Dublin	Ballyboughal	24/02/2020	N	Fluvial	0
Dublin	Cabinteely	18/08/2023	Y	Pluvial	0
Dublin	Donabate	01/11/2019	N	Pluvial	0
Dublin	Donabate	12/11/2020	N	Pluvial	0
Dublin	Dublin City	04/09/2022	Y	Pluvial	0
Dublin	Dublin City	20/06/2023	Y	Pluvial	0
Dublin	Dublin City	05/08/2023	Y	Pluvial	0
Dublin	Finglas	15/08/2022	Y	Pluvial	0
Dublin	Firhouse	30/01/2021	Y	Unknown	0
Dublin	Glasthule	18/08/2023	Y	Pluvial	0
Dublin	Goatstown	21/08/2021	Y	Pluvial	0
Dublin	Irishtown	07/12/2021	Y	Pluvial	0
Dublin	Kilbarrack	02/12/2021	Y	Pluvial	0
Dublin	Kilternan	Recurring	N	Fluvial	0
Dublin	Lusk	24/02/2020	N	Fluvial	0
Dublin	Lusk	27/07/2021	N	Pluvial	0
Dublin	Lusk / Balbriggan	24/02/2020	N	Fluvial	0
Dublin	Malahide	27/07/2021	Y	Pluvial	0
Dublin	Malahide	22/03/2023	Y	Coastal	0
Dublin	Monkstown	18/08/2023	Y	Pluvial	0
Dublin	Rush	24/02/2020	Y	Fluvial	0

County	Location	Start Date	2nd Cycle APSFR	Source of Flooding	No. of Properties Flooded
Dublin	Rush	20/10/2020	Y	Tidal	0
Dublin	Rush	14/11/2020	Y	Tidal	0
Dublin	Skerries	27/07/2021	Y	Pluvial	0
Dublin	Swords	27/07/2021	N	Pluvial	0
Galway	Clifden	02/09/2020	Y	Fluvial	31
Galway	Kinvarra	13/11/2023	N	Coastal / Tidal	25
Galway	Oranmore	13/11/2023	N	Coastal / Tidal	16
Galway	Clarinbridge	13/11/2023	N	Coastal / Tidal	11
Galway	Kilcolgan	13/11/2023	N	Coastal / Tidal	9
Galway	Killeenaran / Brandy Harbour	13/11/2023	N	Coastal / Tidal	5
Galway	Ballinasloe	13/06/2023	Y	Pluvial	4
Galway	Athenry	06/08/2019	N	Fluvial / Pluvial	0
Galway	Athenry	08/08/2019	N	Groundwater / Pluvial	0
Galway	Athenry	22/11/2024	N	Fluvial	0
Galway	Claregalway	22/11/2024	Y	Fluvial	0
Galway	Clifden	22/11/2024	Y	Fluvial	0
Galway	Dunmore	02/11/2020	N	Pluvial	0
Galway	Galway City	18/12/2019	Y	Coastal	0
Galway	Galway City	20/02/2020	Y	Coastal / Fluvial	0
Galway	Galway City	14/07/2023	Y	Pluvial	0
Galway	Galway City	13/11/2023	Y	Coastal / Pluvial	0
Galway	Galway City	20/10/2024	Y	Coastal	0
Galway	Kinvarra	04/09/2019	N	Coastal / Tidal	0
Galway	Kinvarra	04/10/2019	N	Coastal / Tidal	0
Galway	Kinvarra	16/10/2019	N	Coastal / Tidal	0
Galway	Maam Cross / Recess	02/09/2020	N	Fluvial	0
Galway	Maam Cross / Recess	22/11/2024	N	Fluvial	0
Galway	Tuam	22/11/2024	N	Fluvial	0
Kerry	Listowel	20/06/2023	Y	Pluvial	49
Kerry	Listowel, Killacrim & Gortnaminch	22/11/2024	Y	Fluvial	47
Kerry	Tralee	17/06/2023	Y	Pluvial	5
Kerry	Firies	15/08/2020	N	Fluvial / Pluvial	2
Kerry	Lauragh Lower	24/08/2020	N	Fluvial	2
Kerry	Ballyhar	22/02/2021	N	Fluvial	1
Kerry	Killarney	26/06/2019	Y	Pluvial	1
Kerry	Killarney	20/06/2023	Y	Pluvial	1
Kerry	Ballybunion	14/07/2023	N	Fluvial	0
Kerry	Ballylongford	07/12/2021	Y	Coastal	0

County	Location	Start Date	2nd Cycle APSFR	Source of Flooding	No. of Properties Flooded
Kerry	Ballymalis	23/02/2021	N	Fluvial	0
Kerry	Ballyroe	07/12/2021	N	Fluvial	0
Kerry	Castleisland	14/07/2023	Y	Fluvial	0
Kerry	Castleisland	25/03/2024	Y	Unknown	0
Kerry	Castleisland	22/11/2024	Y	Fluvial / Pluvial	0
Kerry	Curraghmore	22/11/2024	N	Fluvial	0
Kerry	Fossa	23/02/2021	N	Fluvial	0
Kerry	Fossa	07/12/2021	N	Fluvial	0
Kerry	Glenflesk	24/02/2021	Y	Fluvial / Pluvial	0
Kerry	Glenflesk	22/11/2024	Y	Fluvial / Pluvial	0
Kerry	Gortshanavalla	11/11/2020	N	Pluvial	0
Kerry	Kenmare	29/07/2020	Y	pluvial	0
Kerry	Kenmare	05/10/2024	Y	Fluvial	0
Kerry	Kenmare Sound	07/12/2021	Y	Tidal	0
Kerry	Kilfenora	07/12/2021	N	Coastal	0
Kerry	Killarney	23/02/2021	Y	Fluvial	0
Kerry	Killarney	22/11/2024	Y	Unknown	0
Kerry	Killorglin	23/02/2021	N	Fluvial	0
Kerry	Kilmorna	11/11/2020	N	Pluvial	0
Kerry	Listowel	14/07/2023	Y	Pluvial	0
Kerry	Scartaglin	11/11/2020	N	Pluvial	0
Kerry	Tralee	07/12/2021	Y	Coastal	0
Kildare	Celbridge	22/09/2019	Y	Fluvial	0
Kilkenny	Freshford	28/10/2022	Y	Fluvial	19
Kilkenny	Kilkenny City	17/06/2023	Y	Pluvial	10
Kilkenny	Callan	01/10/2022	Y	Fluvial / Pluvial	5
Kilkenny	Inistioge	01/11/2022	Y	Fluvial	2
Kilkenny	Thomastown	01/11/2022	Y	Fluvial	2
Kilkenny	Bennetsbridge	24/10/2023	N	Fluvial	1
Kilkenny	Grannagh	19/10/2020	N	Tidal	0
Kilkenny	Kilkenny City	21/10/2023	Y	Pluvial	0
Kilkenny	Kylebeg	21/10/2023	N	Pluvial	0
Kilkenny	Thomastown	23/10/2023	Y	Fluvial	0
Laois	Cloncannon	08/02/2020	N	Fluvial	0
Laois	Cloncannon	23/02/2020	N	Fluvial	0
Laois	Coolrain	22/02/2020	N	Fluvial	0
Laois	Donore Little	23/02/2020	N	Fluvial	0
Laois	Kilbricken	23/02/2020	N	Fluvial	0
Laois	Leighlin Road	23/02/2020	N	Fluvial	0
Laois	Mountrath	09/02/2020	Y	Fluvial	0
Laois	Mountrath	23/02/2020	Y	Fluvial	0
Laois	O'Moores Forest	23/02/2020	N	Fluvial	0

County	Location	Start Date	2nd Cycle APSFR	Source of Flooding	No. of Properties Flooded
Leitrim	Dromahaire	29/06/2019	N	Fluvial	10
Leitrim	Ballinaglera	09/08/2020	N	Fluvial	6
Leitrim	Kinlough	06/10/2022	N	Fluvial	2
Leitrim	Rossinver	Recurring	N	Fluvial	2
Leitrim	Glenanniff / Rossinver	Recurring	N	Fluvial	1
Leitrim	Carrick-on-Shannon	20/02/2020	Y	Fluvial	0
Leitrim	Glenfarne	Recurring	N	Fluvial	0
Leitrim	Gowel West	Recurring	N	Fluvial	0
Leitrim	Grange	Recurring	N	Fluvial	0
Limerick	Limerick City	30/08/2019	Y	Fluvial / Tidal	5
Limerick	Askeaton	14/11/2020	Y	Tidal	2
Limerick	Abbeyfeale	22/11/2024	N	Fluvial	0
Limerick	Abbeyfeale	Recurring	N	Pluvial	0
Limerick	Ballyclough	27/10/2023	N	Pluvial	0
Limerick	Ballycummin	25/10/2023	Y	Pluvial	0
Limerick	Ballycummin	27/10/2023	Y	Pluvial	0
Limerick	Ballyneety	26/10/2023	N	Fluvial / Pluvial	0
Limerick	Ballysimon	26/10/2023	N	Pluvial	0
Limerick	Caherconlish	10/09/2023	N	Pluvial	0
Limerick	Cappamore	10/09/2023	Y	Pluvial	0
Limerick	Castleconnell	01/02/2020	Y	Fluvial	0
Limerick	Castleconnell	09/02/2020	Y	Fluvial	0
Limerick	Castletroy	01/02/2020	Y	Fluvial	0
Limerick	Doon	10/09/2023	N	Pluvial	0
Limerick	Foynes	14/11/2020	Y	Coastal / Tidal	0
Limerick	Limerick City	01/02/2020	Y	Fluvial	0
Limerick	Limerick City	14/11/2020	Y	Fluvial / Tidal	0
Limerick	Limerick City	02/11/2022	Y	Fluvial	0
Limerick	Mungret	26/09/2023	N	Groundwater	0
Limerick	Newcastle West	10/09/2023	Y	Pluvial	0
Limerick	Patrickswell	23/10/2023	N	Pluvial	0
Limerick	Rathuard	24/10/2023	Y	Pluvial	0
Longford	Ballinalee	10/08/2019	N	Pluvial	0
Longford	Ballymahon	01/02/2020	N	Fluvial	0
Longford	Drumlish	10/08/2019	N	Pluvial	0
Longford	Feraghfad	15/03/2024	N	Pluvial	0
Longford	Longford Town	15/02/2020	Y	Pluvial	0
Longford	Longford Town	16/02/2020	Y	Pluvial	0
Louth	Carlingford	30/10/2023	Y	Fluvial / Pluvial	44
Louth	Cooley	31/10/2023	N	Fluvial	3
Louth	Dunleer	24/02/2020	N	Fluvial	3

County	Location	Start Date	2nd Cycle APSFR	Source of Flooding	No. of Properties Flooded
Louth	Jenkinstown	30/10/2023	N	Fluvial	3
Louth	Dundalk	13/01/2020	Y	Coastal / Tidal	2
Louth	Omeath	18/08/2023	N	Pluvial	2
Louth	Ravensdale	30/10/2023	N	Fluvial	2
Louth	Drogheda	04/07/2023	Y	Pluvial	1
Louth	Dundalk	30/10/2023	Y	Pluvial	1
Louth	Flurrybridge	31/10/2023	N	Fluvial	1
Louth	Greenore	31/10/2023	Y	Fluvial	1
Louth	Omeath	30/10/2023	N	Fluvial / Pluvial	1
Louth	Termonfeckin	24/02/2020	Y	Fluvial	1
Louth	Termonfeckin	20/10/2023	Y	Fluvial	1
Louth	Carlingford	28/01/2021	Y	Pluvial	0
Louth	Drogheda	13/01/2020	Y	Tidal	0
Louth	Dundalk	02/09/2020	Y	Pluvial	0
Louth	Dundalk	23/03/2023	Y	Tidal	0
Louth	Dundalk	24/03/2023	Y	Tidal	0
Louth	Faughart	31/01/2023	N	Pluvial	0
Louth	Kilcurry	31/01/2023	N	Fluvial	0
Louth	Omeath	Recurring	N	Coastal / Tidal	0
Mayo	Ballina	18/02/2022	Y	Tidal	0
Mayo	Ballina	22/03/2023	Y	Tidal	0
Mayo	Ballina	23/03/2023	Y	Tidal	0
Mayo	Ballina	30/09/2023	Y	Fluvial / Tidal	0
Mayo	Ballina	28/10/2023	Y	Fluvial / Tidal	0
Mayo	Castlebar	19/06/2023	N	Pluvial	0
Mayo	Foxford	08/02/2020	Y	Fluvial	0
Mayo	Foxford	20/02/2020	Y	Fluvial	0
Mayo	Louisburgh	22/11/2024	Y	Fluvial	0
Meath	Bettystown	05/08/2023	Y	Pluvial	30
Meath	Bettystown	20/01/2021	Y	Pluvial	0
Meath	Navan	01/01/2022	Y	Pluvial	0
Monaghan	Clones	Recurring	N	Fluvial	0
Monaghan	Lurganmore	Recurring	N	Pluvial	0
Monaghan	Monaghan	20/02/2022	Y	Fluvial	0
Monaghan	Tullynacross	27/09/2023	N	Pluvial	0
Roscommon	Strokestown	Recurring	N	Pluvial	2
Roscommon	Annagh	Recurring	N	Fluvial	0
Roscommon	Athlone	20/02/2020	Y	Fluvial	0
Roscommon	Ballaghadereen	30/06/2023	N	Pluvial	0
Roscommon	Carrigeenduff	Recurring	N	Fluvial	0
Roscommon	Castlerea	14/08/2022	N	Pluvial	0

County	Location	Start Date	2nd Cycle APSFR	Source of Flooding	No. of Properties Flooded
Roscommon	Cloongownagh	Recurring	N	Pluvial	0
Roscommon	Elphin	30/06/2023	N	Pluvial	0
Roscommon	Elphin	Recurring	N	Pluvial	0
Roscommon	Kilmore	Recurring	N	Fluvial	0
Roscommon	Knockarush	Recurring	N	Pluvial	0
Roscommon	Lough Funshinagh	19/01/2021	N	Groundwater	0
Roscommon	Athleague	01/03/2020	Y	Groundwater	1
Roscommon	Cloonown	Recurring	N	Fluvial	0
Sligo	Ballintogher	10/05/2023	N	Pluvial	0
Sligo	Ballygawley	22/11/2024	N	Fluvial	0
Sligo	Ennsicrone	Recurring	N	Coastal	0
Sligo	Grange	Recurring	N	Fluvial	0
Sligo	Kilshalvy	Recurring	N	Fluvial	0
Sligo	Mullaghmore	13/11/2023	N	Pluvial	0
Sligo	Riverstown	01/03/2022	N	Fluvial	0
Sligo	Sligo	22/03/2023	Y	Coastal	0
Sligo	Strandhill	11/02/2020	N	Coastal	0
Tipperary	Ballina	02/11/2022	N	Fluvial / Pluvial	15
Tipperary	Ballina	11/01/2023	N	Fluvial / Pluvial	5
Tipperary	Ballina	09/03/2020	N	Fluvial / Pluvial	3
Tipperary	Ballina	31/07/2021	N	Fluvial / Pluvial	2
Tipperary	Grangemockler	28/10/2022	N	Fluvial	2
Tipperary	Ballina	24/06/2022	N	Fluvial / Pluvial	1
Tipperary	Anner Bridge	01/02/2022	N	Fluvial	0
Tipperary	Ardfinnan	21/11/2019	Y	Fluvial	0
Tipperary	Ardfinnan	03/02/2021	Y	Fluvial	0
Tipperary	Ardfinnan	21/02/2022	Y	Fluvial	0
Tipperary	Ardfinnan	31/10/2022	Y	Fluvial	0
Tipperary	Ballylooby	Recurring	N	Fluvial	0
Tipperary	Cahir	14/10/2019	Y	Pluvial	0
Tipperary	Cahir	01/02/2021	Y	Fluvial	0
Tipperary	Cahir	03/02/2021	Y	Fluvial	0
Tipperary	Cahir	21/02/2022	Y	Fluvial	0
Tipperary	Carrick on Suir	17/06/2023	Y	Pluvial	0
Tipperary	Clonmel	23/02/2021	Y	Fluvial	0
Tipperary	Fethard	01/02/2022	Y	Fluvial	0
Tipperary	Fethard	28/10/2022	Y	Fluvial	0
Tipperary	Goatenbridge	21/02/2022	N	Fluvial	0
Tipperary	Golden	01/02/2020	Y	Fluvial	0
Tipperary	Golden	25/02/2020	Y	Fluvial	0

County	Location	Start Date	2nd Cycle APSFR	Source of Flooding	No. of Properties Flooded
Tipperary	Golden	01/11/2020	Y	Fluvial	0
Tipperary	Golden	12/11/2020	Y	Fluvial	0
Tipperary	Golden	01/02/2021	Y	Fluvial	0
Tipperary	Golden	25/02/2021	Y	Fluvial	0
Tipperary	Golden	01/02/2022	Y	Fluvial	0
Tipperary	Golden	21/02/2022	Y	Fluvial	0
Tipperary	Newcastle	03/02/2020	Y	Fluvial	0
Tipperary	Newcastle	21/02/2022	Y	Fluvial	0
Tipperary	Newcastle	Recurring	Y	Fluvial	0
Tipperary	Newcastle-Goatenbridge	04/11/2022	Y	Fluvial	0
Tipperary	Rossadrehid	Recurring	N	Fluvial	0
Tipperary	Thurles	04/02/2021	Y	Fluvial	0
Tipperary	Thurles	04/11/2022	Y	Fluvial	0
Various	Shannon Callows	15/07/2023	N	Fluvial	0
Waterford	Ballyduff	Recurring	Y	Fluvial	2
Waterford	Lismore	Recurring	N	Coastal / Fluvial	2
Waterford	Aglish	Recurring	Y	Pluvial	1
Waterford	Portlaw	Recurring	N	Fluvial	1
Waterford	Tallow	Recurring	N	Pluvial	1
Waterford	Ardmore	Recurring	N	Coastal	0
Waterford	Ballynamult	Recurring	N	Fluvial	0
Waterford	Clashmore	Recurring	N	Fluvial	0
Waterford	Dungarvan	29/09/2024	Y	Fluvial	0
Waterford	Dungarvan	Recurring	Y	Coastal / Fluvial / Pluvial	0
Waterford	Finisk Bridge	Recurring	N	Fluvial	0
Waterford	Lismore	23/02/2021	N	Fluvial	0
Waterford	Millstreet	Recurring	N	Pluvial	0
Waterford	Mocollop	Recurring	N	Fluvial	0
Waterford	Nire Valley	29/09/2024	N	Fluvial	0
Waterford	Passage East	Recurring	N	Fluvial / Pluvial	0
Waterford	Toorneena	Recurring	N	Fluvial	0
Waterford	Tramore	Recurring	N	Coastal	0
Waterford	Waterford City	22/02/2021	Y	Fluvial	0
Waterford	Waterford City	22/03/2023	Y	Coastal	0
Westmeath	Ankers Bower	Recurring	Y	Pluvial	0
Westmeath	Athlone	20/02/2020	Y	fluvial	0
Westmeath	Athlone	01/11/2020	Y	Pluvial	0
Westmeath	Athlone	Recurring	Y	Pluvial	0
Westmeath	Carrickobreen	Recurring	Y	Pluvial	0
Westmeath	Golden Island	Recurring	Y	Pluvial	0

County	Location	Start Date	2nd Cycle APSFR	Source of Flooding	No. of Properties Flooded
Westmeath	Moate	Recurring	N	Pluvial	0
Wexford	New Ross	15/08/2022	Y	Pluvial	68
Wexford	Bridgetown	25/12/2021	N	Fluvial	27
Wexford	Rosslare	28/10/2023	N	Pluvial	19
Wexford	Ballinoulard & Cullentra	25/12/2021	N	Pluvial	3
Wexford	Enniscorthy	25/06/2023	Y	Pluvial	3
Wexford	Ballycanew	25/12/2021	N	Fluvial	1
Wexford	Ballyroebuck Ferns	25/12/2021	N	Fluvial	1
Wexford	Gorey	30/01/2021	N	Fluvial / Pluvial	1
Wexford	Inch	30/01/2021	N	Fluvial	1
Wexford	Kilrane	23/10/2023	N	Pluvial	1
Wexford	Adamstown	25/12/2021	N	Fluvial	0
Wexford	Ahare Bridge	30/01/2021	N	Fluvial	0
Wexford	Ballyboggan	23/10/2023	Y	Pluvial	0
Wexford	Barntown	30/01/2021	N	Fluvial	0
Wexford	Barntown	25/12/2021	N	Fluvial	0
Wexford	Blackwater	25/12/2021	N	Fluvial	0
Wexford	Boleybaun	25/12/2021	N	Fluvial	0
Wexford	Bunclody	03/11/2022	N	Pluvial	0
Wexford	Camross	25/12/2021	N	Fluvial	0
Wexford	Carnsore Point	25/12/2021	N	Fluvial	0
Wexford	Castlebridge	25/12/2021	N	Fluvial	0
Wexford	Castlebridge	23/10/2023	N	Pluvial	0
Wexford	Courtown	03/11/2022	N	Pluvial	0
Wexford	Cullenstown Little	25/12/2021	N	Fluvial	0
Wexford	Duncormick	25/12/2021	N	Fluvial	0
Wexford	Enniscorthy	25/12/2021	Y	Fluvial	0
Wexford	Enniscorthy	03/11/2022	Y	Pluvial	0
Wexford	Gorey	25/12/2021	N	Fluvial	0
Wexford	Gorey	03/11/2022	N	Pluvial	0
Wexford	Hollyfort	25/12/2021	N	Fluvial	0
Wexford	Kilmore	25/12/2021	N	Fluvial	0
Wexford	Kilmore Quay	25/12/2021	N	Fluvial	0
Wexford	Mangan	25/12/2021	N	Fluvial	0
Wexford	Mayglass	25/12/2021	N	Fluvial	0
Wexford	Raheen	25/12/2021	N	Fluvial	0
Wexford	Wellingtonbridge	25/12/2021	N	Fluvial	0
Wexford	Wexford Town	25/12/2021	Y	Fluvial	0
Wexford	Wexford Town	23/10/2023	Y	Pluvial	0
Wexford	Wilton Bree	25/12/2021	N	Fluvial	0

County	Location	Start Date	2nd Cycle APSFR	Source of Flooding	No. of Properties Flooded
Wicklow	Bray	01/08/2023	Y	Pluvial	2
Wicklow	Kilmacanogue	25/12/2021	N	Pluvial	1
Wicklow	Ashford	20/02/2021	Y	Pluvial	0
Wicklow	Ashford	25/12/2021	Y	Fluvial	0
Wicklow	Baltinglass	25/12/2021	Y	Fluvial	0
Wicklow	Bray	25/12/2021	Y	Fluvial	0
Wicklow	Rathdrum	25/12/2021	N	Fluvial	0

Appendix B –APSFR Designations for the 3rd Cycle

APSFR (Community) Name	County
Carlow	Carlow
Leighlinbridge	Carlow
Tullow	Carlow
Cavan	Cavan
Bunratty	Clare
Ennis	Clare
Kilkee	Clare
Killaloe	Clare
Kilrush	Clare
Shannon	Clare
Sixmilebridge	Clare
Springfield	Clare
Ballingeary / Inchigeelagh	Cork
Ballinhassig	Cork
Ballymakeery / Ballyvourney	Cork
Bandon	Cork
Bantry	Cork
Carrigaline	Cork
Castlemartyr	Cork
Castletown Bearhaven	Cork
Clonakilty	Cork
Cobh	Cork
Cork City	Cork
Douglas	Cork
Dunmanway	Cork
Fermoy	Cork
Glanmire	Cork
Inishannon	Cork
Kanturk	Cork

APSFR (Community) Name	County
Macroom	Cork
Mallow	Cork
Midleton & Ballynacorra	Cork
Rathcormac	Cork
Schull	Cork
Skibbereen	Cork
Togher	Cork
Tower	Cork
Youghal	Cork
Ballybofey / Stranorlar	Donegal
Bunbeg Derrybeg	Donegal
Buncrana & Luddan	Donegal
Burnfoot	Donegal
Carndonagh	Donegal
Carrowkeel	Donegal
Castlefinn	Donegal
Convoy	Donegal
Donegal	Donegal
Downies	Donegal
Dunfanaghy	Donegal
Glenties	Donegal
Killybegs	Donegal
Letterkenny	Donegal
Lifford	Donegal
Moville	Donegal
Raphoe	Donegal
Rathmelton	Donegal
Rathmullan	Donegal
Dublin City	Dublin
Carysfort / Maretimo	Dun Laoghaire Rathdown
Loughlinstown	Dun Laoghaire Rathdown
Old Connaught / Wilford	Dun Laoghaire Rathdown

APSFR (Community) Name	County
Mulhuddart	Fingal
Portmarnock	Fingal
Rush	Fingal
Santry	Fingal
Skerries	Fingal
Sutton and Howth North	Fingal
Swords (South)	Fingal
Ballinasloe	Galway
Claregalway	Galway
Clifden	Galway
Galway City	Galway
Gort	Galway
Portumna	Galway
Abbeydorney	Kerry
Ballylongford	Kerry
Banna	Kerry
Castleisland	Kerry
Dingle	Kerry
Glenflesk	Kerry
Kenmare	Kerry
Killarney	Kerry
Listowel	Kerry
Tralee	Kerry
Tullig	Kerry
Athy	Kildare
Castledermot	Kildare
Celbridge	Kildare
Clane	Kildare
Leixlip	Kildare
Maynooth	Kildare
Naas	Kildare
Newbridge	Kildare

APSFR (Community) Name	County
Suncroft	Kildare
Turnings	Kildare
Ballyhale	Kilkenny
Callan	Kilkenny
Freshford	Kilkenny
Graiguenamanagh	Kilkenny
Inistioge	Kilkenny
Kilkenny Breagagh	Kilkenny
Kilkenny Nore	Kilkenny
Piltown	Kilkenny
Thomastown	Kilkenny
Clonaslee	Laois
Mountmellick	Laois
Mountrath	Laois
Portarlington	Laois
Portlaoise	Laois
Rathdowney	Laois
Carrick on Shannon	Leitrim
Dromod	Leitrim
Leitrim	Leitrim
Mohill	Leitrim
Adare	Limerick
Askeaton	Limerick
Athea	Limerick
Cappamore	Limerick
Castleconnell	Limerick
Dromcolliher	Limerick
Foynes	Limerick
Limerick City & Environs	Limerick
Newcastle West	Limerick
Longford	Longford
Annagassan	Louth

APSFR (Community) Name	County
Ardee	Louth
Baltray	Louth
Bellurgan	Louth
Blackrock South	Louth
Carlingford & Greenore	Louth
Drogheda	Louth
Dundalk	Louth
Termonfeckin	Louth
Ballina & Environs	Mayo
Crossmolina	Mayo
Foxford	Mayo
Louisburgh	Mayo
Westport	Mayo
Ashbourne	Meath
Bettystown	Meath
Clonee	Meath
Duleek	Meath
Dunboyne	Meath
Mornington	Meath
Navan	Meath
Ratoath	Meath
Ballybay	Monaghan
Inishkeen	Monaghan
Monaghan	Monaghan
Birr	Offaly
Rahan	Offaly
Tullamore	Offaly
Athleague	Roscommon
Boyle	Roscommon
Lough Funshinagh	Roscommon
Roscommon	Roscommon
Sligo Town / Rathbraghan	Sligo

APSFR (Community) Name	County
Hazelhatch	South Dublin
Lucan to Chapelizod	South Dublin
Ardfinnan	Tipperary
Borrisoleigh	Tipperary
Cahir	Tipperary
Carrick on Suir	Tipperary
Clonmel	Tipperary
Fethard	Tipperary
Golden	Tipperary
Marlfield	Tipperary
Nenagh	Tipperary
Newcastle	Tipperary
Newport	Tipperary
Roscrea	Tipperary
Templemore	Tipperary
Thurles	Tipperary
Aglish	Waterford
Ballyduff	Waterford
Dungarvan & Ringphuca	Waterford
Waterford	Waterford
Athlone	Westmeath
Mullingar	Westmeath
Bridgetown	Wexford
Enniscorthy	Wexford
New Ross & Environs	Wexford
Rosslare	Wexford
Wexford	Wexford
Arklow	Wicklow
Ashford & Rathnew	Wicklow
Aughrim	Wicklow
Avoca	Wicklow
Baltinglass	Wicklow

APSFR (Community) Name	County
Blessington	Wicklow
Bray	Wicklow
Greystones & Environs	Wicklow
Newcastle	Wicklow
Wicklow	Wicklow