

Shannon Flood Risk State Agency Co-ordination Working Group Detailed Work Programme 2018

The Group's extensive Work Programme demonstrates the ongoing work and co-ordination by all State bodies to jointly and proactively address flood risk on the Shannon under the following themes of activity:

Physical Works

Maintenance:

Maintenance of Infrastructure

Maintenance of Channels

Water Management:

Water Level and Flow Regulation

Hydrometric Monitoring

Regulatory Functions

Policy and Planning:

Mapping, Planning and Emergency

WFD and Climate Change

Physical Works	From your Agency's 2018 Work Programme, describe the activities that relate to or impact flooding, flood risk or flood risk management of the Shannon Catchment	Where on the Shannon Catchment will this activity occur	When will this activity occur	External Factor(s) necessary to complete this Activity	Details of the Expected Output from this Activity. This will be the Output KPI for this activity.	Details of the Expected Outcome from this Activity.
ESB						
	Five-year power washing of concrete structures to facilitate inspections.	Ardnacrusha Dam and Parteen Weir. See previous map and GIS data.	Spring 2018	N/A	Dams cleaned and moss, dirt, etc. removed to ensure greater visibility of surfaces during inspections.	Maintenance of dam safety, prevention of inundation due to dam failure and regulation of water levels in Lough Derg and Parteen Basin in accordance with ESB's Regulations and Guidelines for the Control of the River Shannon, including diversion of water from the River Shannon through Ardnacrusha Headrace.
	Five-year inspection and maintenance of Spillway Gates 1 to 6 at Parteen Weir.	Parteen Weir. See previous map and GIS data.	April - September 2018	N/A	Five-year maintenance is carried out on 6 No. spillway gates. Gates operate as required during floods.	Water control equipment is reliable to ensure regulation of water levels in Lough Derg and Parteen Basin in accordance with ESB's Regulations and Guidelines for the Control of the River Shannon, including diversion of water from the River Shannon through Ardnacrusha Headrace.
	Replacement of Intake Screens for Unit 1 at Ardnacrusha	Ardnacrusha Generating Station. See previous map and GIS data.	April - September 2018	N/A	Intake Screens replaced	Unit 1 is reliable to assist regulation of water levels in Lough Derg and Parteen Basin in accordance with ESB's Regulations and Guidelines for the Control of the River Shannon, including ensuring that water can be diverted from the River Shannon through Ardnacrusha Headrace
Irish Water						
WWTP Plant and Drainage Network Upgrade	Not Applicable	Shannon Town Sewerage Scheme	Plant and Drainage Network Upgrade. Works ongoing 2018	LA Planning Permission	Not Applicable	Not Applicable
WWTP Plant Upgrade	Not Applicable	Mohill Wastewater Treatment Plant	Plant Upgrade. Start mid 2016. Complete by mid 2018	LA Planning Permission	Not Applicable	Not Applicable
Foul/Combined Sewer Drainage Network	Reduced risk of road/property sewer flooding within urban catchment	Athlone Wastewater Drainage Scheme	Network Upgrade. Commence Construction Q3 2018	LA Planning Permission	Significant upgrade of existing foul/combined sewer drainage network on both west and east bank of the River Shannon at Athlone.	Q1 2022
Drainage Network	Not Applicable	Roscommon Town	Capital Maintenance - Sewer Rehabilitation. Works Ongoing until 2021	Exempt Development	Not Applicable	Not Applicable
Office of Public Works						
Flood Relief Schemes under design and construction Existing Programme	Major Flood Defence Schemes information	Ennis Lower, Ennis South, Foynes, Limerick City (Kings Island), Athlone	Various	Various consents	As per individual project milestones	Protection of properties, land and infrastructure
Flood Relief Schemes under design and construction New Programme from Plans	https://www.opw.ie/en/pressreleases/articleheading_38881_en.html	New schemes announced for 34 AFAs in Shannon Catchment	10 Year Programme of Investment	Detailed Design, Planning and consents	As per individual project milestones	Protection of properties, land and infrastructure
Bord na Móna						
Peatland flood protection embankments	Annual inspection of peatland flood protection embankments to assess their condition after winter season.	To Follow	Inspections are scheduled to be carried out in Q1 2018 dependant on flood levels, ground conditions and availability of internal Civil Engineering and Land Surveyor resources.	None	Flood Defence Report 2018	Detailed work plan to repair and strengthen flood defence embankments where required.
Peatland flood protection embankments	Implementation of any investigations, remedial actions, reinstatement or repairs on flood protection embankments which are deemed to be required.	To Follow	A prioritised action plan will be developed following the completion of the inspections. Works will typically be completed between June to October 2017 (dependant on weather and ground conditions). Works may extend beyond 2018.	None	Percentage of investigations, remedial actions and repairs completed.	Investigations completed. Remedial actions completed. Reinstatement / Repair works completed.
Inland Fisheries Ireland						
Provision of Fish Passage at barrier on the Bunowen River at Ahascragh, County Galway	Removal of weir and replacement with a rock ramp	At the mill head race, Bunowen River, Tributary of the River Suck.	June - September 2018 subject to funding.	No Licence or permit required. Planning permission received in 2017	Opens up 8kms of river to Salmonid spawning. Some reduction in water levels upstream of the barrier.	Should benefit flood levels upstream of the barrier by lowering water levels to near natural conditions.
Removal and replacement offshing platforms under the IFI Stands and Structures programme	Removal and Installation of floating or fixed structures on various angling catchments.	Midlands lakes, River Suck, Lough Derg, Lough Na Blahy, Cavetown Lake	May - Sept as water levels recede.	For third parties Section 59 fishery improvement authorisations. Planning in some instances.	Provision of angling infrastructure. Accessibility.	N/A
Instream development projects for fisheries improvements under Salmon Conservation Fund, MFF and NSAD Plan	Depending on the project application, instream works can include introduction of spawning gravels, random boulders, vortex weirs, fish passage improvements, barriers to fish passage removal or partial removal.	Various catchments but also Kilucan and Frances River Co. Roscommon	Jul - Sept	Planning may be required. Section 59 authorisations from IFI for third party projects	2+ kms channel rehabilitation dependant on project applications	No flood risk envisaged
Provision of instream works pursuant to an Order from the District Court	spawning gravel		Jul-Sept	No Licence or permit required	200m approx of improved spawning and nursery habitat	No flood risk envisaged

Physical Works	From your Agency's 2018 Work Programme, describe the activities that relate to or impact flooding, flood risk or flood risk management of the Shannon Catchment	Where on the Shannon Catchment will this activity occur	When will this activity occur	External Factor(s) necessary to complete this Activity	Details of the Expected Output from this Activity. This will be the Output KPI for this activity.	Details of the Expected Outcome from this Activity.
All County Councils						
Raising of Roads, Building of embankments, Installation of Culverts and other flood relief works funded by the OPW or DTTAS See examples provided below	Implementation of any investigations, remedial actions, reinstatement or repairs on arterial network which are deemed to be required.	See lists of approved flood projects under OPW Minor Works Scheme at www.opw.ie	All year	Possible requirement for National Parks and Wildlife, Inland Fisheries, OPW & land owners for certain works.	Varies	Prevention of flooding of properties, land and ensuring access
Offaly County Council						
Birr Municipal District	Various road drainage schemes	Newtown, Pollagh, Shinrone	March - October 2018	Part 8 Planning Approval	Varies	Relief of Road Flooding
Edenderry Municipal District	Various road drainage schemes	Portarlinton, Geashill, Ballymooney	March - October 2018	Minor Works funding.	Varies	Relief of Road Flooding
Leitrim County Council						
Raise Road Levels	Raising of road levels of roads in Carrick on Shannon town above flood level.	L-3399-7 and L-3401-1	Application for funding with Department of Transport at present. Design work to commence when funding approved	Planning approval obtained in 2016		Project will ensure access to 3 hotels and 100 residential properties
Flood Relief Scheme	Flood Relief Scheme Leitrim Village	Leitrim Village	Scheme resently approved by OPW. Programme of scheme to be decided following meeting with OPW	Planning approval required plus requirement for National Parks and Wildlife, Inland Fisheries, OPW & land owners for certain works	Construction of a 142m of new flood defence wall and a 498m new embankment, and a flood gate;	This option provides protection to 58 of the 61 properties within the AFA, identified as being at risk of flooding within the 1% AEP event
Flood Relief Scheme	Flood Relief Scheme Mohill	Mohill	Scheme resently approved by OPW. Programme of scheme to be decided following meeting with OPW	Planning approval required plus requirement for National Parks and Wildlife, Inland Fisheries, OPW & land owners for certain works	Construction of 69m of new flood defence walls;	This option reduces the risk to 7 of the 8 properties within the AFA, identified as being at risk in the 1% AEP event,

Maintenance of Infrastructure	From your Agency's 2018 Work Programme, describe the activities that relate to or impact flooding, flood risk or flood risk management of the Shannon Catchment	Where on the Shannon Catchment will this activity occur	When will this activity occur	External Factor(s) necessary to complete this Activity	Details of the Expected Output from this Activity. This will be the Output KPI for this activity.	Details of the Expected Outcome from this Activity.
ESB						
	Ongoing maintenance of Bellantra Sluices Structure at the outlet of Lough Allen, consisting of lubrication of sluice gate mechanisms, regular movement of gates and clearing of debris from gate openings. Note: This is a Category C structure, where a breach would pose negligible risk to life and cause limited damage.	Bellantra Sluice Structure, Lough Allen, Co.Leitrim. See previous map and GIS data.	Ongoing	N/A	Sluice structure maintained to ensure both dam safety and regulation of water levels in Lough Allen in accordance with ESB's Regulations and Guidelines for the Control of the River Shannon and the pilot protocol for regulation of Lough Allen during the winter period.	Maintenance of dam safety, prevention of inundation due to dam failure and regulation of water levels in Lough Allen in accordance with ESB's Regulations and Guidelines for the Control of the River Shannon and the pilot protocol for regulation of Lough Allen during the winter period.
	Formal annual inspection of Bellantra Sluices Structure by ESB International, consisting of visual inspection of sluice structure, gates and operating mechanisms, test operation of gates and checking of gauges.	Bellantra Sluice Structure, Lough Allen, Co.Leitrim. See previous map and GIS data.	Summer/Autumn 2018	N/A	Annual inspection carried out on 1 No. sluice structure.	Maintenance of dam safety, prevention of inundation due to dam failure and regulation of water levels in Lough Allen in accordance with ESB's Regulations and Guidelines for the Control of the River Shannon and the pilot protocol for regulation of Lough Allen during the winter period.
	Ongoing maintenance of Lough Allen Embankment, including grass cutting and repairs. Note: This is a Category C embankment, where a breach would pose negligible risk to life and cause limited damage.	Southwest shore of Lough Allen. See previous map and GIS data.	Ongoing	N/A	Approximately 1km of embankment maintained to ensure both dam safety and regulation of water levels in Lough Allen in accordance with ESB's Regulations and Guidelines for the Control of the River Shannon and the pilot protocol for regulation of Lough Allen during the winter period.	Maintenance of embankment safety, prevention of inundation due to embankment breaches and regulation of water levels in Lough Allen in accordance with ESB's Regulations and Guidelines for the Control of the River Shannon and the pilot protocol for regulation of Lough Allen during the winter period.
	Fortnightly inspections of Lough Allen Embankment.	Southwest shore of Lough Allen. See previous map and GIS data.	Ongoing	N/A	Safety of approximately 1km of embankment ensured and water levels regulated in Lough Allen in accordance with ESB's Regulations and Guidelines for the Control of the River Shannon and the pilot protocol for regulation of Lough Allen during the winter period.	Maintenance of embankment safety, prevention of inundation due to embankment breaches and regulation of water levels in Lough Allen in accordance with ESB's Regulations and Guidelines for the Control of the River Shannon and the pilot protocol for regulation of Lough Allen during the winter period.
	Formal annual inspection of Lough Allen Embankment by the ESB International, comprising visual inspection of the entire length of embankment from the crest and upstream toe.	Southwest shore of Lough Allen. See previous map and GIS data.	Summer/Autumn 2018	N/A	Annual inspection of approximately 1km of embankment carried out.	Maintenance of embankment safety, prevention of inundation due to embankment breaches and regulation of water levels in Lough Allen in accordance with ESB's Regulations and Guidelines for the Control of the River Shannon and the pilot protocol for regulation of Lough Allen during the winter period.
	Ongoing maintenance of water control equipment at Bellantra Sluice Structure.	Bellantra Sluice Structure, Lough Allen, Co.Leitrim. See previous map and GIS data.	Ongoing	N/A	2 No. sluice gates maintained to ensure both dam safety and regulation of water levels in Lough Allen in accordance with ESB's Regulations and Guidelines for the Control of the River Shannon and the pilot protocol for regulation of Lough Allen during the winter period.	Water control equipment operates reliably to ensure dam safety and regulation of water levels in Lough Allen in accordance with ESB's Regulations and Guidelines for the Control of the River Shannon and the pilot protocol for regulation of Lough Allen during the winter period.
	Embankment maintenance and repairs at Meelick, Whitesford and Boula, including grass cutting, drain cleaning and repairs as required.	Meelick, Whitesford and Boula Embankments on river upstream of Lough Derg. See previous map and GIS data.	April - September 2018	Possible requirement for National Parks and Wildlife Service licence for certain works in SACs.	Integrity and design crest level of approximately 20km of embankments maintained.	Integrity of Meelick, Whitesford and Boula Embankments maintained during floods and agricultural land protected for river levels up to the design crest level of the embankments.

Maintenance of Infrastructure	From your Agency's 2018 Work Programme, describe the activities that relate to or impact flooding, flood risk or flood risk management of the Shannon Catchment	Where on the Shannon Catchment will this activity occur	When will this activity occur	External Factor(s) necessary to complete this Activity	Details of the Expected Output from this Activity. This will be the Output KPI for this activity.	Details of the Expected Outcome from this Activity.
	Fortnightly inspections of Meelick, Whitesford and Boula Embankments.	Meelick, Whitesford and Boula Embankments on river upstream of Lough Derg. See previous map and GIS data.	Ongoing	N/A	Integrity of approximately 20km of embankments maintained.	Integrity of Meelick, Whitesford and Boula Embankments maintained during floods and agricultural land protected for river levels up to the design crest level of the embankments.
	Seepage detection and repair as required for Meelick, Whitesford and Boula Embankments. There is a history of seepage developing in the material under the embankments. These seepages are repaired by grouting as required.	Meelick, Whitesford and Boula Embankments on river upstream of Lough Derg. See previous map and GIS data.	Ongoing	Possible requirement for National Parks and Wildlife Service licence for certain works in SACs	Integrity of approximately 20km of embankments maintained.	Integrity of Meelick, Whitesford and Boula Embankments maintained during floods and agricultural land protected for river levels up to the design crest level of the embankments.
	Maintenance of land drainage pumps and pumping stations and ongoing operation at Meelick, Whitesford and Boula.	Meelick, Whitesford and Boula Embankments on river upstream of Lough Derg. See previous map and GIS data.	Ongoing	N/A	Reliable operation of 3 No. pumping stations.	Agricultural land protected for river levels up to the design crest levels of Meelick, Whitesford and Boula Embankments.
	Ongoing maintenance of Fort Henry (3.1km), Ardclooney (1.2km) and Ardnacrusha Headrace Left (11.6km) and Right (11.6km) Embankments, including grass cutting, drain cleaning and repairs as required. Notes: (a) These are Category A embankments, where a breach could endanger lives in a downstream community. (b) A breach or significant damage to either Headrace Embankment would require the Headrace to be closed. The result of this would be that during a flood no water could be diverted into the Headrace and the entire flood flow would have to pass down the Shannon River channel, increasing the flood risk to areas downstream of Parteen Weir.	Fort Henry and Ardclooney Embankments upstream of Parteen Weir. Ardnacrusha Embankments on headrace canal. See previous map and GIS data.	Ongoing	N/A	Approximately 27.5km of embankments maintained to ensure both dam safety and regulation of water levels in Lough Derg and Parteen Basin in accordance with ESB's Regulations and Guidelines for the Control of the River Shannon.	Maintenance of embankment safety, prevention of inundation due to embankment breaches and regulation of water levels in Lough Derg and Parteen Basin in accordance with ESB's Regulations and Guidelines for the Control of the River Shannon, including diversion of water from the River Shannon through Ardnacrusha Headrace.
	Daily inspections and seepage measurements for Fort Henry, Ardclooney and Ardnacrusha Left and Right Headrace Embankments.	Fort Henry and Ardclooney embankments upstream of Parteen Weir. Ardnacrusha embankments on headrace canal. See previous map and GIS data.	Ongoing	N/A	Daily inspections of approximately 27.5km of embankments and seepage measurements carried out at 132 spring measuring points and daily seepage measurements entered into Dam Monitor database.	Maintenance of embankment safety, prevention of inundation due to embankment breaches and regulation of water levels in Lough Derg and Parteen Basin in accordance with ESB's Regulations and Guidelines for the Control of the River Shannon, including diversion of water from the River Shannon through Ardnacrusha Headrace
	Monthly piezometer measurements for Fort Henry, Ardclooney and Ardnacrusha Left and Right Headrace Embankments. These measurements are taken to monitor the phreatic surface in the embankments, which influences the stability of the embankments. Alert levels are set to warn of potential stability issues.	Fort Henry and Ardclooney embankments upstream of Parteen Weir. Ardnacrusha embankments on headrace canal. See previous map and GIS data.	Ongoing	N/A	Monthly measurements carried out on 189 piezometers and entered into Dam Monitor database.	Maintenance of embankment safety, prevention of inundation due to embankment breaches and regulation of water levels in Lough Derg and Parteen Basin in accordance with ESB's Regulations and Guidelines for the Control of the River Shannon, including diversion of water from the River Shannon through Ardnacrusha Headrace

Maintenance of Infrastructure	From your Agency's 2018 Work Programme, describe the activities that relate to or impact flooding, flood risk or flood risk management of the Shannon Catchment	Where on the Shannon Catchment will this activity occur	When will this activity occur	External Factor(s) necessary to complete this Activity	Details of the Expected Output from this Activity. This will be the Output KPI for this activity.	Details of the Expected Outcome from this Activity.
	Formal annual inspection of Fort Henry, Ardcloney and Ardnacrusa Left and Right Headrace Embankments by ESB International, comprising visual inspection of the embankments from the crest and downstream toe and review of monitoring data.	Fort Henry and Ardcloney embankments upstream of Parteen Weir. Ardnacrusa embankments on headrace canal. See previous map and GIS data.	Summer/Autumn 2018	N/A	Annual inspections of Fort Henry, Ardcloney and Headrace Left and Right Embankments carried out.	Maintenance of embankment safety, prevention of inundation due to embankment breaches and regulation of water levels in Lough Derg and Parteen Basin in accordance with ESB's Regulations and Guidelines for the Control of the River Shannon, including diversion of water from the River Shannon through Ardnacrusa Headrace
	Leak detection and repairs as required at Fort Henry, Ardcloney and Ardnacrusa Left and Right Headrace Embankments.	Fort Henry and Ardcloney embankments upstream of Parteen Weir. Ardnacrusa embankments on headrace canal. See previous map and GIS data.	Ongoing	N/A	Integrity of approximately 27.5km of embankments maintained.	Maintenance of embankment safety, prevention of inundation due to embankment breaches and regulation of water levels in Lough Derg and Parteen Basin in accordance with ESB's Regulations and Guidelines for the Control of the River Shannon, including diversion of water from the River Shannon through Ardnacrusa Headrace
	Ongoing maintenance of Kilmastulla Embankment, including grass cutting and drain cleaning.	Kilmastulla embankment. See previous map and GIS data.	Ongoing	N/A	Integrity of approximately 2.5km of embankment maintained.	Embankment maintains its integrity during floods and protects agricultural land for river levels up to the design crest level.
	Daily inspection of Kilmastulla Embankment.	Kilmastulla embankment. See previous map and GIS data.	Ongoing	N/A	Daily inspections of approximately 2.5km of embankment carried out.	Embankment maintains its integrity during floods and protects agricultural land for river levels up to the design crest level
	Maintenance of land drainage pumps and pumping stations and ongoing operation at three locations along Kilmastulla Embankment.	Kilmastulla Pumphouses. See previous map and GIS data.	Ongoing	N/A	Reliable operation of 3 No. Pumping stations.	Protection of agricultural land for river levels up to the design crest level of embankment.
	Principal inspections of Ardnacrusa Headrace Bridges.	Ardnacrusa Headrace. See previous map and GIS data.	Autumn 2018	N/A	Principal inspections carried out on O'Briens Bridge, Clonlara Bridge and Blackwater Bridge.	Maintenance of access routes over public road bridges. Bridges also facilitate works access to ESB dams and embankments.
	Daily inspections of Ardnacrusa Dam and Parteen Weir, including checking of water levels (upstream and downstream of dams), rainfall gauges and other instruments. Note: Ardnacrusa Dam and Parteen Weir are Category A dams where a breach could endanger lives in a downstream community.	Parteen Weir and Ardnacrusa Dam. See previous map and GIS data.	Ongoing	N/A	Daily inspections of 2 No. dams and associated gauges are carried out.	Maintenance of dam safety, prevention of inundation due to dam failure and regulation of water levels in Lough Derg and Parteen Basin in accordance with ESB's Regulations and Guidelines for the Control of the River Shannon, including diversion of water from the River Shannon through Ardnacrusa Headrace.
	Monitoring of uplift, movements and seepages for Ardnacrusa Dam and Parteen Weir.	Parteen Weir and Ardnacrusa Dam. See previous map and GIS data.	Ongoing	N/A	Measurements for 98 instruments are taken at required frequencies and entered into Dam Monitor database.	Maintenance of dam safety, prevention of inundation due to dam failure and regulation of water levels in Lough Derg and Parteen Basin in accordance with ESB's Regulations and Guidelines for the Control of the River Shannon, including diversion of water from the River Shannon through Ardnacrusa Headrace.
	Maintenance of water control gates and equipment at Ardnacrusa Dam and Parteen Weir.	Parteen Weir and Ardnacrusa Dam. See previous map and GIS data.	April - September 2018	N/A	Scheduled maintenance is carried out on 7 No. spillway gates, 7 No. intake gates and 4 No. navigation gates. Gates operate as required during floods.	Water control equipment is reliable to ensure regulation of water levels in Lough Derg and Parteen Basin in accordance with ESB's Regulations and Guidelines for the Control of the River Shannon, including diversion of water from the River Shannon through Ardnacrusa Headrace.

Maintenance of Infrastructure	From your Agency's 2018 Work Programme, describe the activities that relate to or impact flooding, flood risk or flood risk management of the Shannon Catchment	Where on the Shannon Catchment will this activity occur	When will this activity occur	External Factor(s) necessary to complete this Activity	Details of the Expected Output from this Activity. This will be the Output KPI for this activity.	Details of the Expected Outcome from this Activity.
	Formal annual inspections of Ardnacrusha Dam and Parteen Weir by the ESB International, including visual inspection of dam structures, gates and operating mechanisms, test operation of gates, checking of gauges and review of dam monitoring data.	Parteen Weir and Ardnacrusha Dam. See previous map and GIS data.	Summer/Autumn 2018	N/A	Annual inspections carried out on Ardnacrusha Dam and Parteen Weir.	Maintenance of dam safety, prevention of inundation due to dam failure and regulation of water levels in Lough Derg and Parteen Basin in accordance with ESB's Regulations and Guidelines for the Control of the River Shannon, including diversion of water from the River Shannon through Ardnacrusha Headrace.
	Formal five-year inspections of Ardnacrusha Dam and Parteen Weir by ESB's External Dam Safety Committee of dam safety experts.	Parteen Weir and Ardnacrusha Dam. See previous map and GIS data.	May 2018	N/A	Five-year External Dam Safety Committee inspections carried out on Ardnacrusha Dam and Parteen Weir.	Maintenance of dam safety, prevention of inundation due to dam failure and regulation of water levels in Lough Derg and Parteen Basin in accordance with ESB's Regulations and Guidelines for the Control of the River Shannon, including diversion of water from the River Shannon through Ardnacrusha Headrace.
	Quarterly tests of headrace intake gates and spillway gate operations at Parteen Weir.	Parteen Weir. See previous map and GIS data.	Ongoing	N/A	Quarterly tests carried out on 6 No. spillway gates and 3 No. intake gates at Parteen Weir.	Water control equipment is reliable to ensure regulation of water levels in Lough Derg and Parteen Basin in accordance with ESB's Regulations and Guidelines for the Control of the River Shannon, including diversion of water from the River Shannon through Ardnacrusha Headrace.
	Six monthly test operation of Ardnacrusha spillway gate.	Ardnacrusha Dam. See previous map and GIS data.	Ongoing	N/A	Six monthly tests are carried out on the spillway gate	Water control equipment is reliable to ensure regulation of water levels in Lough Derg and Parteen Basin in accordance with ESB's Regulations and Guidelines for the Control of the River Shannon, including diversion of water from the River Shannon through Ardnacrusha Headrace.
	Annual overhauls of four turbine/generator units at Ardnacrusha Generating Station. Note: Unavailability of the turbine/generator units during a flood would result in no water being diverted into the Headrace and the entire flood flow having to pass down the Shannon River channel, increasing the flood risk to areas downstream of Parteen Weir.	Ardnacrusha Generating Station. See previous map and GIS data.	April-September 2018	N/A	Annual overhauls are carried out on 4 No. turbine generator units.	Generation equipment is reliable to assist regulation of water levels in Lough Derg and Parteen Basin in accordance with ESB's Regulations and Guidelines for the Control of the River Shannon, including ensuring that water can be diverted from the River Shannon through Ardnacrusha Headrace
	Principal inspection of Parteen Bridge on Ardnacrusha Tailrace.	Ardnacrusha tailrace. See previous map and GIS data.	Summer 2018	N/A	Principal inspection of Parteen Bridge is carried out	Maintenance of access route over public road bridge. Bridges also facilitate works access to ESB dams and embankments.

Maintenance of Infrastructure	From your Agency's 2018 Work Programme, describe the activities that relate to or impact flooding, flood risk or flood risk management of the Shannon Catchment	Where on the Shannon Catchment will this activity occur	When will this activity occur	External Factor(s) necessary to complete this Activity	Details of the Expected Output from this Activity. This will be the Output KPI for this activity.	Details of the Expected Outcome from this Activity.
Waterways Ireland						
maintenance of sluices	ongoing maintenance of existing sluices and gates	Knockvickar (fixed weir and lock), Jamestown (fixed Weir and sluices), Jamestown (Lateral canal and lock), Rooskey (fixed weir, sluices and lock), Tarmonbarry (Fixed weir, sluices and lock), Cloondra (Fixed Weir), Meelick (fixed weir, sluices and lock) New Cut (sluices) and Athlone sluices on instruction from ESB,	all year		9 locations inspected and maintained	proper functioning of the sluice barrages and weirs
Bord na Móna						
BnM Rail Bridge at Kilnacarrow, North of Lanesborough	Local scour depressions are noted to upstream cutwaters of 3 no. piers. It is recommended that suitably sized rip-rap / stone or infilled gravel bags be installed within these areas of scour. A number of areas of spalling are noted on the piers. It is recommended that the areas of spalling be repaired as part of routine maintenance. Trapped debris (tree) required to be removed from 1 no. pier. No impact on Shannon flooding or flood risk.	Attached	Follow up scour inspection surveys will be completed during Q3 2018.	Timing, methodology and safety requirements for the protection works will be agreed with Waterways Ireland.	Remedial works recommended are completed.	Follow up scour inspection surveys to confirm if there has been any further deterioration since the last survey undertaken in 2016.
BnM Rail Bridge at Shannonbridge	Scour depressions evident to 3 no. piers. These areas of scour have developed since the last inspection (2016). It is recommended that a suitably sized rip-rap / stone be installed around the perimeter of each pier. Noted debris (steel beam) at the upstream cutwater of 1 no. pier should be removed. No impact on Shannon flooding or flood risk.	Attached	Follow up scour inspection surveys will be completed during Autumn 2018. Installation of rip-rap / stone will be completed during August and Septemebr 2018.	Timing, methodology and safety requirements for the protection works will be agreed with Waterways Ireland.	Remedial works recommended are completed.	Follow up scour inspection surveys to confirm if there has been any further deterioration since the last survey undertaken in 2016. Installation of rip-rap / stone will reduce risk of further damage / undermining of BnM bridge piers in future flood events. No impact on Shannon flooding or flood risk.
Inland Fisheries Ireland						
Counter/ Crump weirs cleaning and maintenance of electrodes, cameras	Sandbagging channel of an associated crump weir to facilitate cleaning - temporary sandbagging and removed immediately on day of maintenance	Mulkear River, upstream of annacotty counter weir.	Subject to water levels and flow for H&S reasons of staff	None required	Piecemeal work undertaken to ensure other 2 channels remain in operation at all times.	N/A
Removal of blockages from weirs, Fishpasses, and other structures where the passage of fish may be comprimised.	Where possible removal by hand of trees, shrub from counter weir, other weirs, bridges, fishpasses and small streams where water would be held back and fish passage is hampered	Mulkear River, upstream of annacotty counter weir, other various areas throughout the ShRBD	As arises while on protection patrols	None required	Ensuring passage for fish and water flow	N/A
All County Councils						
Repairs to Bridges & Culverts and Maintenance of embankments and pumping stations See examples provided below	Drainage Districts - carry out annual inspections on bridge\culverts along drainage district.	Various Locations - To follow	Varies	Possible requirement for National Parks and Wildlife, Inland Fisheries, OPW & Landowners for certain works.	Varies	Facilitates natural stream drainage, reduces risk of localised flooding

Maintenance of Infrastructure	From your Agency's 2018 Work Programme, describe the activities that relate to or impact flooding, flood risk or flood risk management of the Shannon Catchment	Where on the Shannon Catchment will this activity occur	When will this activity occur	External Factor(s) necessary to complete this Activity	Details of the Expected Output from this Activity. This will be the Output KPI for this activity.	Details of the Expected Outcome from this Activity.
Longford County Council						
Mosstown Keenagh	alleviate flood at properties	adjacent to the Keenagh river	2018	subject to land owners consent	elimination of flooding risk to dwellings	elimination of flooding risk to dwellings
Lislea	alleviate flood at properties	within the Keenagh river Catchment	2018	subject to land owners consent	elimination of flooding risk to properties	elimination of flooding risk to properties
Fortwilliam, Lanesboro	design and construct Flood defence at dwelling	Turlough at Forthwilliam	late 2018 subject to OPW approval	Subject to detailed design	elimination of flooding risk to a dwelling	elimination of flooding risk to a dwelling
The Mall Longford	design and construct Flood defence at sports centre	on the north bank of the Camlin river in the Mall area Longford Town	late 2018 subject to OPW approval	Subject to detailed design	elimination of flooding risk to the sports facilities including the various buildings on site	elimination of flooding risk to the sports facilities including the various buildings on site

Maintenance of Channels	From your Agency's 2018 Work Programme, describe the activities that relate to or impact flooding, flood risk or flood risk management of the Shannon Catchment	Where on the Shannon Catchment will this activity occur	When will this activity occur	External Factor(s) necessary to complete this Activity	Details of the Expected Output from this Activity. This will be the Output KPI for this activity.	Details of the Expected Outcome from this Activity.
ESB						
	Cleaning of screens at inlets to culverts and siphons on rivers and streams draining under Ardnacrusha Headrace during floods.	Ardnacrusha Headrace. See previous map and GIS data.	Ongoing - as required	N/A	Screens kept clean, particularly during floods.	Facilitates natural stream drainage, reduces risk of localised flooding and protects Headrace Embankments
	Annual cleaning of Kilmastulla River adjacent to Fort Henry Embankment (2.5km) and Black River and open drain (1km) adjacent to Ardcloney Embankment.	Fort Henry and Ardcloney Embankments upstream of Parteen Weir. See previous map and GIS data.	Summer/Autumn 2018	N/A	Approximately 3.5km of channels cleaned.	Facilitates channel conveyance, reduces risk of localised flooding and protects Headrace Embankments.
	Inspection of Ardnacrusha Tailrace channel.	Ardnacrusha tailrace. See previous map and GIS data.	Summer 2018	N/A	Inspection of tailrace channel carried out.	Ensures that any issues relating to the Tailrace are identified at an early stage and remedial measures implemented if necessary in order to assist regulation of water levels in Lough Derg and Parteen Basin in accordance with ESB's Regulations and Guidelines for the Control of the River Shannon, including diversion of water from the River Shannon through Ardnacrusha Headrace.
Waterways Ireland						
Maintenance of navigation channel	Ongoing and planned maintenance of channel including removal of obstructions, cutting back of vegetation impacting the navigation channel	various	all year		250km of channel maintained	ensure navigation channel is clear and unobstructed
Office of Public Works						
Arterial Drainage Maintenance: The Commissioners of Public Works have a duty under Section 37 of the Arterial Drainage Act, 1945 to maintain drainage works carried out under said Act "in proper repair and and effective condition".	Channels and embankments are to be maintained on the following schemes. Boyle, Knockroghery, Inny, Brosna, Killimor/Cappagh, Carrigahorig, Nenagh/Clareen, Mulkear, Groody, Maigue, Deel, Feale, and those embankment schemes administered collectively by OPW as Shannon Embankments North and Shannon Embankments South.	www.maps.opw.ie	Ongoing throughout the year.	We have agreed protocols with IFI and consult with DAHG (NPWS) on Habitats Directive requirements and DAHG (DAU) on possible impact on Archaeology. Appropriate Assessments must be carried out where our work is likely to have a significant effect on an SAC. In the event that species covered by the Wildlife Act are to be the subject of interference licences need to sought from NPWS.	In 2018, approx 780 kms of channels and embankments are to be maintained on the following schemes: Boyle, Knockroghery, Inny, Brosna, Killimor/Cappagh, Carrigahorig, Nenagh/Clareen, Mulkear, Groody, Maigue, Deel, Feale, and those embankment schemes administered collectively by OPW as Shannon Embankments North and Shannon Embankments South. Progress to be reported on quarterly.	The Programme ensures that flood risk in these cases is kept at the current relatively low level.
Joint initiative led by OPW and Waterways Ireland	Progress the development of a proposal for the removal of a series of pinchpoints or constrictions in the navigation channel between Meelick Weir and Athlone, in the Callows area.	Callows	Ongoing	Requires a hydraulic analysis, environmental assessment under the appropriate legislation and will be subject to planning. The required planning process would be a matter for Waterways Ireland. As part of the development of this proposal, the potential impact on flows will be assessed to ensure that any works do not have a negative impact further downstream.	Detailed Proposal for decision	Improvement to channel conveyance with flood risk
All County Councils						
Maintain Arterial Drainage schemes that are the responsibility of the Local Authority and other channel maintenance See examples provided below	Drainage Districts - removal of vegetation and blockages to small rivers, streams and drains	Various Locations	May to September	Possible requirement for National Parks and Wildlife, Inland Fisheries, OPW & Landowners for certain works.	Possible requirement for National Parks and Wildlife, Inland Fisheries, OPW & Landowners for certain works.	Possible requirement for National Parks and Wildlife, Inland Fisheries, OPW & Landowners for certain works.
Offaly County Council						
Fallan River tributary of Camlin River	Maintenance of River Channel over a distance of circa 2kms near Ballinalee	between townland of Aghantrah and ramp to Lyneen Bridge on R398 regional road	Summer 2018	Liaison with Irish Fisheries & landowners.	km of channel maintained	reduction in the area of land flooded
Black River tributary of Rinn	Maintenance of River Channel over a distance of circa 1kms near Drumlish	west of Drumlish	Summer 2019	Liaison with Irish Fisheries & landowners.	km of channel maintained	reduction in the area of land flooded

Maintenance of Channels	From your Agency's 2018 Work Programme, describe the activities that relate to or impact flooding, flood risk or flood risk management of the Shannon Catchment	Where on the Shannon Catchment will this activity occur	When will this activity occur	External Factor(s) necessary to complete this Activity	Details of the Expected Output from this Activity. This will be the Output KPI for this activity.	Details of the Expected Outcome from this Activity.
Longford County Council						
Camlin River	Maintenance of River Channel over a distance of circa 2kms near Ballinalee	to follow	Works to be completed by 31st August 2018	Consultation with IFI	km of channel maintained	reduction in the area of land flooded
Leitrim County Council						
Responsibility for a number of Drainage Districts under the Arterial Drainage Acts	Channel clearing	Rinn and Black River	Quarter 3 2018	Agreement with landowners and Inland Fisheries	km of channel cleaned	maintain flow conditions in drainage channels
Responsibility for a number of Drainage Districts under the Arterial Drainage Acts	Channel clearing	Eslin River	Quarter 3 2018	Agreement with landowners and Inland Fisheries	km of channel cleaned	maintain flow conditions in drainage channels
Responsibility for a number of Drainage Districts under the Arterial Drainage Acts	Channel clearing	Headford	Quarter 3 2018	Agreement with landowners and Inland Fisheries	km of channel cleaned	maintain flow conditions in drainage channels

Water Level and Flow Regulation	From your Agency's 2018 Work Programme, describe the activities that relate to or impact flooding, flood risk or flood risk management of the Shannon Catchment	Where on the Shannon Catchment will this activity occur	When will this activity occur	External Factor(s) necessary to complete this Activity	Details of the Expected Output from this Activity. This will be the Output KPI for this activity.	Details of the Expected Outcome from this Activity.
ESB						
	Operation of four turbine generator sets at Ardnacrusha Generating Station for electricity production	Ardnacrusha Generating Station. See previous map and GIS data.	Ongoing	Generation Licence (CER).	Output is electricity generation. Up to 400 cubic metres per second flows in headrace at full load.	Diversion of water to Ardnacrusha Generating Station via headrace canal means that it is not flowing down the original Shannon course south of Parteen Weir. This provides flood benefit in this area.
	Regulation of discharge at outlet from Lough Allen.	Bellantra Sluice Structure, Lough Allen, Co.Leitrim. See previous map and GIS data.	Ongoing as lake levels vary	N/A	Water control equipment operated to regulate water levels in Lough Allen in accordance with ESB's Regulations and Guidelines for the Control of the River Shannon and the pilot protocol for regulation of Lough Allen during the winter period.	Regulation of water levels in Lough Allen in accordance with ESB's Regulations and Guidelines for the Control of the River Shannon and the pilot protocol for regulation of Lough Allen during the winter period. Note that lake levels are varied for the purposes of ensuring minimum navigation levels in summer and to maintain minimum flow in the downstream channel. Maximum level is set by embankment safety consideration.
	Continued trial implementation and ongoing assessment of pilot protocol for regulating water levels in Lough Allen during the winter period.	Bellantra Sluice Structure, Lough Allen, Co.Leitrim. See previous map and GIS data.	Ongoing from 15th September, as weather conditions and inflows allow.	N/A	Water control equipment operated to regulate water levels in Lough Allen in accordance with ESB's Regulations and Guidelines for the Control of the River Shannon and the pilot protocol for regulation of Lough Allen during the winter period.	Regulation of water levels in Lough Allen in accordance with ESB's Regulations and Guidelines for the Control of the River Shannon and the pilot protocol for regulation of Lough Allen during the winter period. Note that lake levels are varied for the purposes of ensuring minimum navigation levels in summer and to maintain minimum flow in the downstream channel. Maximum level is set by embankment safety consideration.
	Regulation of discharge at outlet from Lough Ree by Waterways Ireland under instruction from ESB. Note that ESB exercises no control on Lough Ree water levels during floods when all sluices gates on Athlone Weir are closed.	Athlone Weir at southern end of Lough Ree. See previous map and GIS data.	Ongoing as lake levels vary	N/A	Water levels in Lough Ree are regulated in accordance with ESB's Regulations and Guidelines for the Control of the River Shannon, including the agreed interim guidelines between April and mid-August.	Regulation of water levels in Lough Ree in accordance with ESB's Regulations and Guidelines for the Control of the River Shannon, including the agreed interim guidelines between April and mid-August. Note that lake levels are varied for the purposes of ensuring minimum navigation levels in summer .
	Trial implementation and ongoing assessment of interim guidelines for regulating water levels in Lough Ree between April and mid-August.	Athlone Weir at southern end of Lough Ree. See previous map and GIS data.	Ongoing as lake levels vary	N/A	Water levels in Lough Ree are regulated in accordance with ESB's Regulations and Guidelines for the Control of the River Shannon, including the agreed interim guidelines between April and mid-August.	Regulation of water levels in Lough Ree in accordance with ESB's Regulations and Guidelines for the Control of the River Shannon, including the agreed interim guidelines between April and mid-August. Note that lake levels are varied for the purposes of ensuring minimum navigation levels in summer .

Water Level and Flow Regulation	From your Agency's 2018 Work Programme, describe the activities that relate to or impact flooding, flood risk or flood risk management of the Shannon Catchment	Where on the Shannon Catchment will this activity occur	When will this activity occur	External Factor(s) necessary to complete this Activity	Details of the Expected Output from this Activity. This will be the Output KPI for this activity.	Details of the Expected Outcome from this Activity.
	Continuous monitoring of water levels and rates of drawdown in Parteen Basin and Ardnacrusha Headrace to ensure embankment stability. Levels either above maximum allowed or below minimum allowed can have adverse effects on the stability of Fort Henry, Ardcloney and Ardnacrusha Left and Right Headrace Embankments.	Fort Henry and Ardcloney embankments upstream of Parteen Weir. Ardnacrusha embankments on headrace canal. See previous map and GIS data.	Ongoing	N/A	Integrity of approximately 27.5km of embankments maintained.	Maintenance of embankment safety, prevention of inundation due to embankment breaches and regulation of water levels in Lough Derg and Parteen Basin in accordance with ESB's Regulations and Guidelines for the Control of the River Shannon, including diversion of water from the River Shannon through Ardnacrusha Headrace
	Regulation of discharge at the outlet from Lough Derg.	Parteen Weir. See previous map and GIS data.	Ongoing as lake levels vary	N/A	Water levels in Lough Derg regulated in accordance with ESB's Regulations and Guidelines for the Control of the River Shannon.	Maintenance of dam safety, prevention of inundation due to dam failure and regulation of water levels in Lough Derg and Parteen Basin in accordance with ESB's Regulations and Guidelines for the Control of the River Shannon, including diversion of water from the River Shannon through Ardnacrusha Headrace.
	Implementation of the requirements of the Regulations and Guidelines for the Control of the River Shannon, at all times, but particularly during flood periods.	N/A	Ongoing	N/A	Water management is carried out in accordance with the Regulations and Guidelines for the Control of the River Shannon.	Maintenance of dam and embankment safety, prevention of inundation due to dam failure or embankment breaches and regulation of water levels in Loughs Allen, Ree and Derg, as well as in Parteen Basin in accordance with ESB's Regulations and Guidelines for the Control of the River Shannon and interim/pilot measures in place for Loughs Allen and Ree, including diversion of water from the River Shannon through Ardnacrusha Headrace.
	Daily management of water levels in Loughs Allen, Ree and Derg.	N/A	Ongoing	N/A	Daily generation targets prepared, sluice gates adjusted as required at Bellantra Sluices, instructions given to Waterways Ireland regarding required changes to sluice gates at Athlone Weir and spillway gates adjusted as required at Parteen Weir.	Ensures regulation of water levels in Loughs Allen, Ree and Derg, as well as in Parteen Basin in accordance with ESB's Regulations and Guidelines for the Control of the River Shannon and interim/pilot measures in place for Loughs Allen and Ree, including diversion of water from the River Shannon through Ardnacrusha Headrace.
Waterways Ireland						
Management of water levels	Management of water levels at 9 structures to defined Ordinary Summer Level and within defined limits in conjunction with ESB	Knockvickar (fixed weir and lock), Jamestown (fixed Weir and sluices), Jamestown (Lateral canal and lock), Rooskey (fixed weir, sluices and lock), Tarmonbarry (Fixed weir, sluices and lock) Clondra (fixed Weir, Meelick (Fixed Weir, Sluices and Lock, New Cut Sluices and Athlone (Fixed Weir and Sluices) under instruction from ESB	ongoing		water level managed daily in conjunction with ESB	water level managed daily to maintain navigable channel levels

Water Level and Flow Regulation	From your Agency's 2018 Work Programme, describe the activities that relate to or impact flooding, flood risk or flood risk management of the Shannon Catchment	Where on the Shannon Catchment will this activity occur	When will this activity occur	External Factor(s) necessary to complete this Activity	Details of the Expected Output from this Activity. This will be the Output KPI for this activity.	Details of the Expected Outcome from this Activity.
National Parks & Wildlife Service						
Peatlands	<p>7 raised bog LIFE sites are within Shannon catchment as defined by CFRAMS. There will be drainage management plans to be developed with OPW and all stakeholders before any restoration works commence. The drainage management plans will be designed to ensure any restoration works will have negligible downstream impacts. Potential relocation of turf cutters to non-designated bogs within the Shannon Catchment area could have implications in terms of infrastructure and drainage works in the relocation sites and consequently possible planning implications.</p>			Potential relocation of turf cutters to non-designated bogs within the Shannon Catchment area could have implications in terms of infrastructure and drainage works in the relocation sites and consequently possible planning implications.		
Inland Fisheries Ireland						
Inspection of hydro and mill operations, Wweirs, Culverts and water abstraction points	Inspection of reported low flows to ensure fish passage at various weirs, hydro schemes and mill operations and waterabstraction points	Various locations	As required throughout the year particularly in drought conditions	None	Ensuring adequate flow regimes for fish passage particularly during migration periods	N/A

Hydrometric Monitoring and Forecasting	From your Agency's 2018 Work Programme, describe the activities that relate to or impact flooding, flood risk or flood risk management of the Shannon Catchment	Where on the Shannon Catchment will this activity occur	When will this activity occur	External Factor(s) necessary to complete this Activity	Details of the Expected Output from this Activity. This will be the Output KPI for this activity.	Details of the Expected Outcome from this Activity.
ESB						
	Daily recording of Lough Allen water levels and rainfall.	Bellantra Sluice Structure, Lough Allen, Co. Leitrim. See previous map and GIS data.	Ongoing	N/A	Daily record of Lough Allen water levels and rainfall.	Daily monitoring and recording of hydrometric data provides essential input to water management decisions, particularly during floods.
	Daily recording of Lough Ree water levels.	"The Thatch" water level gauge on eastern side of Lough Ree. See previous map and GIS data.	Ongoing	N/A	Daily record of Lough Ree water levels.	Daily monitoring and recording of water levels provides essential input to water management decisions, particularly during floods.
	Daily recording of Lough Derg water levels and rainfall.	Portumna, Ballyvalley and Pier Head (Killaloe). See previous map and GIS data.	Ongoing	N/A	Daily recording of Lough Derg water levels and rainfall.	Daily monitoring and recording of hydrometric data provides essential input to water management decisions, particularly during floods
	Monitoring of levels and alarms, upstream of culverts and siphons, on seven rivers and streams draining under Ardnacrusha Headrace.	Ardnacrusha Headrace. See previous map and GIS data.	Ongoing	N/A	Continuous monitoring of levels and alarms.	Facilitates natural stream drainage, reduces risk of localised flooding and protects Headrace Embankments
	Twice weekly forecasts of water levels in Loughs Allen, Ree and Derg.	N/A	Ongoing	N/A	Lake level forecasts prepared and issued to stakeholders on Mondays and Thursdays.	Lake level forecasts assist stakeholders in preparing for potential adverse conditions during floods or low levels.
	Provide hydrometric data for the Shannon in response to queries from the public, state and semi-state organisations, consultants, academic institutions, etc.	N/A	Ongoing	N/A	Responses provided to queries in a timely manner.	Data provided in response to queries assist in flood risk management for new and existing developments.
	Display daily level data for ESB gauges on the Shannon, daily flow data for Ardnacrusha and Parteen Weir and the current twice weekly forecast on the ESB website.	https://www.esb.ie/our-businesses/generation-energy-trading-new/hydro	Ongoing	N/A	Data updated on a daily basis.	Level and flow data publicly available at all times, including during floods.
Office of Public Works						
OPW hydrometric programme	The OPW Hydrometric Section operates and maintains 118 surface water monitoring stations in the Shannon RBD. Real time water level data at 15 minute intervals is available at 109 (92%) of these stations, on the waterlevel.ie portal.	www.waterlevel.ie	Ongoing in real time	None	N/A	Helps quantify severity of event and aids all organisations in provision and management of flood response measures.
Environmental Protection Agency						
Preparation and implementation of a national hydrometric monitoring programme (section 64 of EPA Act 1992)	EPA will publish a national hydrometric monitoring programme in conjunction with the other members of the National Hydrometric Working Group. This programme includes setting out the hydrometric monitoring that is being undertaken on the Shannon. The definition of the hydrometric network for the Shannon will include sites which are strategically important from a floods management standpoint in addition to other requirements.	www.epa.ie/water/wm/hydronet/	Hydrometric Monitoring programme review will be published in 2018.	None	National Hydrometric Monitoring Programme under Section 64 of the EPA Act.	Currently the network of stations within the Shannon appear to be very good, although three rivers have been identified where additional hydrometric data would be beneficial (the Owensleive River, the Rine River and the Cloon River). Over the next few years the EPA will investigate these rivers to determine the best mechanism for data capture, which may include the establishment of temporary hydrometric stations.
Hydrometric Monitoring and Public Information	EPA manages the data coming from a series of Local Authority hydrometric monitoring sites within the Shannon Catchment with a focus on monitoring of low flows. EPA also provides when requested support to OPW staff during flooding events. EPA also operates a website (hydronet that acts as a portal to all hydrometric monitoring sites nationally). The EPA will be upgrading its hydrometric modelling capability during 2018, primarily aimed a low flow modelling.	www.epa.ie/water/wm/hydronet/	Ongoing	None	Improved hydrometric data on the flow regime within the Shannon.	The EPA will tailor its hydrometric monitoring in response to the national hydrometric programme recommendations and in relation to addressing issues in response to the findings of the WFD River Basin Management Plan. This data will continue to be managed and disseminated through HydroNet.
Roscommon County Council						

Hydrometric Monitoring and Forecasting	From your Agency's 2018 Work Programme, describe the activities that relate to or impact flooding, flood risk or flood risk management of the Shannon Catchment	Where on the Shannon Catchment will this activity occur	When will this activity occur	External Factor(s) necessary to complete this Activity	Details of the Expected Output from this Activity. This will be the Output KPI for this activity.	Details of the Expected Outcome from this Activity.
Study of Turloughs underway in Co Galway, Co Roscommon & Co Longford	Annual inspection levels on drainage network	Various Locations	Hydrometric Monitoring programme ongoing.	Possible requirement for National Parks and Wildlife, Inland fisheries, OPW & Landowners for certain works.	Varies	Should benefit flood levels upstream by lowering water levels to near natural conditions.

Regulatory Functions	From your Agency's 2018 Work Programme, describe the activities that relate to or impact flooding, flood risk or flood risk management of the Shannon Catchment	Where on the Shannon Catchment will this activity occur	When will this activity occur	External Factor(s) necessary to complete this Activity	Details of the Expected Output from this Activity. This will be the Output KPI for this activity.	Details of the Expected Outcome from this Activity.
Waterways Ireland						
Navigation Authority	Waterways Ireland is the navigation authority with responsibility for the management, maintenance, development and restoration of the Shannon Navigation	250km of navigation channel and associated facilities and infrastructure	As appropriate	As required	Manage and maintain the navigation	Support cruise hire industry, private boating sector and the recreation and tourism sectors in general
National Parks & Wildlife Service						
Government Department with responsibility regarding oversight of the implementation of the Habitats and Birds Directive	Prescribed body under Planning and Developments in respect of Appropriate Assessment. Referral body under Regulation 42(10) EC (Birds and Habitats) Regulations 2011 in respect of AA and public authorities' own plans and projects.		As appropriate	As required		
Licence Authority	Licence authority in relation to various flora, fauna and habitats under the EC(Birds and Natural Habitats) Regulations 2011 (Regulation 54 and 55).		As appropriate	As required		
Consent Authority	Consent authority for "Activities Requiring Consent" under Regulation 28 of the EC(Birds and Natural Habitats) Regulations 2011, the Wildlife Acts, the Biodiversity & National Biodiversity Plan where in some cases certain works proposed to be undertaken by non public bodies require the consent of the Minister.		As appropriate	As required		
Office of Public Works						
Consent Authority	S47 and S50 Arterial Drainage Act prohibit the alteration or erection of weirs and bridges without the prior consent of the Commissioners. (The ESB has a derogation in the case of the former as do works carried out under certain provisions of Fisheries legislation.)	Defined by each individual application.	Ongoing throughout the year.	No consent may be given without prior consultation with The Minister for Agriculture or in contravention of certain orders made of notices served under certain Fisheries Acts.	Decision within 8 weeks of receipt of complete application.	These consents reduce enormously the risk that flooding might arise from the inappropriate erection or alteration of the classes of structures covered.
Inland Fisheries Ireland						
Section 178 -several fisheries - private fisheries	Enforce compliance in all fisheries - private included. Any physical instream works planned by any agency, landowner.	Various	During the open season - 1st March - 30th September - may include slight adjustments for site specific areas.			No impact on flooding
Section 171 - protection of waters from pollution	Prevent pollution - Deleterious matter entering a watercourse. Any physical instream works has the potential to cause increased suspended solids/organic material which could be classed as deleterious matter	Various	This can occur at any time		Consultation required with IFI. Samples, Prosecutions.	No impact on flooding
Section 172 - owner of a receptacle containing deleterious matter	Prevent pollution - deleterious liquid in a receptacle capable of causing pollution	Various				No impact on flooding

Regulatory Functions	From your Agency's 2018 Work Programme, describe the activities that relate to or impact flooding, flood risk or flood risk management of the Shannon Catchment	Where on the Shannon Catchment will this activity occur	When will this activity occur	External Factor(s) necessary to complete this Activity	Details of the Expected Output from this Activity. This will be the Output KPI for this activity.	Details of the Expected Outcome from this Activity.
Section 173 - taking spawn or juvenile fish, damage to spawning bed	Provide consultation/advice and ensure compliance to other parties regarding protection of fish, their spawn, their spawning beds and habitat. Any physical instream works planned by any agency, landowner will fall under this heading.	Various	This can occur at any time		Consultation required. Mitigation measures.	No impact on flooding
Section 173 - wilfully obstructs the passage of smolts or fry of Salmon, trout or eels	Protection of the passage of migratory fish and the young of migratory fish. Barriers and Hydro stations	Various	Jun - Sept			Any works to fish improvement will in theory benefit flood levels by lowering water levels above the impoundment.
Section 327 - right of owner to take materials from a stream	This section is not used as habitats legislation supercedes it. Only applies to landowners/fishery owners	Various	This can occur at any time	None	No of infrastructural / civil works assessed	No impact on flooding
Section 7 - role of IFI is protection, management and conservation of the inland fisheries resource	Provide consultation/advice and ensure compliance to other parties regarding protection of fish, their spawn, their spawning beds and habitat	ShRBD	This can occur at any time	None	Various metrics	No impact on flooding
Section 115 - provision of fish passes in weirs	Enforce compliance with subsection to ensure the provision of fish passage; advise minister and seek ministerial order if necessary; liaise with weir owner/s and advise on approach; approve plans and oversee repairs/works	At mill headrace on main Bunowen River, Ahascragh Village	Jun - Sept	Section 59 authorisation, section 47 arterial drainage act, planning act 2000 Article 5, AA under habitats directive	Opens up 8 kms of river to salmonid spawning.	Any works to fish improvement will in theory benefit flood levels by lowering water levels above the impoundment.
Section 116 - damaged fish passes - order to repair	Enforce compliance with subsection to ensure the provision of fish passage; advise minister and seek ministerial order if necessary; liaise with weir owner/s and advise on approach; approve plans and oversee repairs/works	As Arise	None planned	N/A	N/A	N/A
Section 117 - removal of defunct weirs/provision of fish pass	Enforce compliance with subsection to ensure the provision of fish passage; advise minister and seek ministerial order if necessary; liaise with weir owner/s and advise on approach; approve plans and oversee repairs/works	At mill headrace on main Bunowen River, Ahascragh Village	Jun - Sept	Section 59 authorisation, section 47 arterial drainage act, planning act 2000 Article 5, AA under habitats directive - All completed under the planning process.	Barriers assessment	No impact on flooding
Section 118 - fish passage through natural barriers (not used as contrary to objectives of WFD)	not used as contrary to objectives of WFD) None planned.	As Arise	N/A			
Section 131 - obstruction of fish during annual closed season	Provide consultation/advice and ensure compliance to other parties regarding protection of fish, their spawn, their spawning beds and habitat	Drainage Works - Various	N/A			
section 138 - Must provide free passage of young salmonids during annual closed season	Enforce compliance with subsection to ensure the provision of fish passage; advise minister and seek ministerial order if necessary; liaise with weir owner/s and advise on approach; approve plans and oversee repairs/works	Bunowen River, Ahascragh, Co. Galway	Jun - Sept	Section 59 authorisation, section 47 arterial drainage act, planning act 2000 Article 5, AA under habitats directive - All completed under the planning process.	Opens up 8 kms of river to salmonid spawning.	Any works to fish improvement will in theory benefit flood levels by lowering water levels above the impoundment.

Regulatory Functions	From your Agency's 2018 Work Programme, describe the activities that relate to or impact flooding, flood risk or flood risk management of the Shannon Catchment	Where on the Shannon Catchment will this activity occur	When will this activity occur	External Factor(s) necessary to complete this Activity	Details of the Expected Output from this Activity. This will be the Output KPI for this activity.	Details of the Expected Outcome from this Activity.
Environmental Protection Agency						
Authorisation of waste activities (EPA and local authorities)	<p>Operators have a responsibility to ensure that all waste activities are correctly authorised prior to commencement. The Environmental Protection Agency is responsible for the authorisation of all large scale waste disposal and recovery activities. Local authorities are responsible for the authorisation of all other (usually smaller scale) waste activities. The EPA's Environmental Licensing Programme will, when asked, make a determination as to the correct form of authorisation for any individual proposed waste activity. The deposition of waste dredge spoil on land is a waste activity. There are some exemptions from waste authorisation available (namely and for example section 3 of the Waste Management Act) but these are restrictive in their scope.</p>	<p>Waste disposal and recovery facilities, e.g. deposition sites for waste dredged spoil. Location of disposal and recovery facilities to be determined by project owners.</p>	<p>Prior to commencement of waste deposition, a waste authorisation must be in place.</p>	<p>Waste licence (EPA) for deposition of waste dredge spoil where the capacity of the deposition site exceeds 100,000 tonnes. A waste facility permit or certificate of authorisation will be required if the capacity of the deposition site is <100,000 or <25,000 tonnes respectively. A query as to the appropriate form of authorisation for any individual deposition site can be directed to the EPA's Environmental Licensing Programme.</p>	<p>Output KPIs - (1) Submission to the Agency or a local authority of a waste authorisation application. (2) Decision (grant or refuse) on authorisation.</p>	<p>Outcome is the quantification by the waste regulatory authority (EPA or local authority) of the risk of environmental pollution arising from the deposition of dredge spoil on land and its authorisation (for the purposes of mitigating environmental risks during and after deposition works) in accordance with the Waste Management Act 1996 as amended.</p>
All County Councils						
Planning and Development Regulations 2001	Planning Control	Various	This can occur at any time	N/A	N/A	N/A

Mapping, Planning and Emergency	From your Agency's 2018 Work Programme, describe the activities that relate to or impact flooding, flood risk or flood risk management of the Shannon Catchment	Where on the Shannon Catchment will this activity occur	When will this activity occur	External Factor(s) necessary to complete this Activity	Details of the Expected Output from this Activity. This will be the Output KPI for this activity.	Details of the Expected Outcome from this Activity.
Office of Public Works						
Mapping	Publication of Flood Maps and ongoing development of new interactive website www.floodinfo.ie Publication of Flood Plans and implementation of measures www.floodinfo.ie	www.floodinfo.ie	Published 3 May 2018 with ongoing review /update	M/PER Approval	Maps for 67 AFAs in Shannon IRBD	Inform Emergency Response Planning, Development of Resilience, Sustainable Planning
Planning		www.floodinfo.ie	Published 3 May 2018 with 10 Year Programme of Investment	M/PER Approval	Plans for 67 AFAs and the catchments in Shannon IRBD	Identification of viable measures and their prioritisation for flood risk management in IRBD
Inland Fisheries Ireland						
Identifying all barriers to fish passage on River Shannon	SNIFFER survey where works imminent. Broader survey to all other barriers assessed. Currently 2/3rds complete.	Mid to lower Shannon	Dependant on engagement of personnel to complete. Jun - Sept	None required	Mapping of all barriers to fish migration. Feed into the IFI National Barriers Group.	Review of barriers and recommended alleviation approach with owners/responsible parties.
All County Councils						
Emergency	Flood incident management on Public Property and to assist in the protection of private property	Various Locations	Varies	Possible requirement for National Parks and Wildlife, Inland fisheries, OPW & Landowners for certain works.	Varies	Protection of property
Emergency	Crisis Management Process at local level on inter-agency basis					
Leitrim County Council						
Emergency	Flood incident management on Public Property and to assist in the protection of private property					
Emergency	Crisis Management Process at local level on interagency basis					

Water Framework Directive and Climate Change	From your Agency's 2018 Work Programme, describe the activities that relate to or impact flooding, flood risk or flood risk management of the Shannon Catchment	Where on the Shannon Catchment will this activity occur	When will this activity occur	External Factor(s) necessary to complete this Activity	Details of the Expected Output from this Activity. This will be the Output KPI for this activity.	Details of the Expected Outcome from this Activity.
Inland Fisheries Ireland						
Drainage or Flood alleviation works	Shannon CFRAMS - Consultation with this process to ensure compliance with WFD and Habitats Directives	Various	Government	EIS, AA, Approvals		
Environmental Protection Agency						
EPA Research	EPA Research Activities on Climate Change Adaptation and Mitigation, and also on water framework areas and catchment management	n/a	ongoing	n/a	n/a	Research reports, data, etc., all available open source http://erc.epa.ie/smartsimple/thematicAreas.php and also via EPA SAFER database: http://erc.epa.ie/safer/
Water Framework Directive Implementation	<p>The overall responsibility for the making of the National River Basin Management Plan resides with the Minister for Housing, Planning and Local Government. The EPA is responsible for advising and assisting the Minister with the development of the plan and the associated programme of measures. The Minister will publish the River Basin Management Plan during the first half of 2018 and the EPA will continue to advance its assessments of hydromorphology in the Shannon and will support the various public authorities with regard to meeting the objectives of the WFD that are identified in the Plan.</p>	<p>https://www.catchments.ie/maps/</p> <p>The Shannon has been assessed as part of this work and the Minister, via the plan, will define environmental objectives for each water body in the country including those within the Shannon.</p>	Plan publication April 2018 and implementation from 2018 to the end of 2021	Input from variety of public bodies. Outputs from consultation.	The final River Basin Management Plan that will be made by the Minister for Housing, Planning and Local Government. Actions will be assigned to various public authorities in this Plan.	The EPA will continue to evaluate and assess the condition of water bodies in Ireland and will support those public authorities who are implementing measures in the Shannon catchment. This will include consideration of the outcomes of the Investigative Assessments that are planned by the Local Authority shared resource within the Shannon catchment between 2018 and 2021. The EPA will also progress work on a national hydromorphological assessment of rivers, lakes and estuaries between 2018 and 2021.
Office of Public Works						
Floods' Directive - WFD Coordination	The OPW has been coordinating on the FD-WFD interaction with the EPA and the D/HPCLG, including bi-lateral meetings, cross-representation of the OPW on the WFD management groups and vice-versa, the exchange of relevant information and some initial work on the coordination of measures. The OPW will continue to work with the EPA and other agencies implementing the WFD.	This action applies primarily to the measures proposed for the 67 AFAs, but also to their catchments and more broadly throughout the River Basin.	Ongoing	Requirements of the 'Floods' and Water Framework Directives	67 AFAs in Shannon IRBD	Where possible, measures that will have benefits for both WFD and flood risk management objectives and to identify and address measures that may otherwise cause conflict between the objectives of the two Directives
Climate Change Adaptation	The OPW considers the possible impacts of climate change, and the associated uncertainty in projections, at all stages of activity under the national Flood Risk Management Programme, and the development, design and implementation of all policies, strategies, plans and measures for, or related to, flood risk management must be sustainable and cognisant of the potential impacts of climate change.	67 AFAs	Ongoing	Climate Change Adaptation Framework (to be developed under the Climate Act 2015)	67 AFAs in Shannon IRBD	Robust, sustainable and adaptable flood risk management strategies and measures.