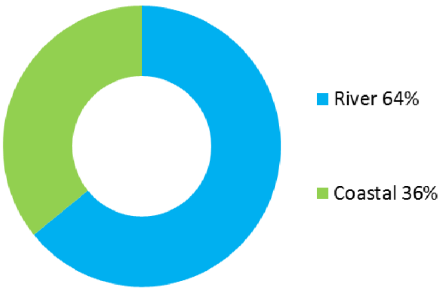
Bornish to Boisdale (Potentially Vulnerable Area 02/08)

Local Plan District	Local authority	Main catchment
Outer Hebrides	Comhairle nan Eilean Siar	South Uist coastal

Summary of flooding impacts



At risk of flooding

- 30 residential properties
- <10 non-residential properties
- £180,000 Annual Average Damages

(damages by flood source shown left)

Summary of objectives to manage flooding

Objectives have been set by SEPA and agreed with flood risk management authorities. These are the aims for managing local flood risk. The objectives have been grouped in three main ways: by reducing risk, avoiding increasing risk or accepting risk by maintaining current levels of management.

Many organisations, such as Scottish Water and energy companies, actively maintain and manage their own assets including their risk from flooding. Where known, these actions are described here. Scottish Natural Heritage and Historic Environment Scotland work with site owners to manage flooding where appropriate at designated environmental and/or cultural heritage sites. These actions are not detailed further in the Flood Risk Management Strategies.

Summary of actions to manage flooding

The actions below have been selected to manage flood risk.

Flood protection scheme/works	*Natural flood management works*	New flood warning	Community flood action groups	*Property level protection scheme*	*Site protection plans*
Flood protection study	*Natural flood management study*	*Maintain flood warning*	Awareness raising	*Surface water plan/study*	Emergency plans/response
Maintain flood protection scheme	Strategic mapping and modelling	Flood forecasting	Self help	Maintenance	Planning policies

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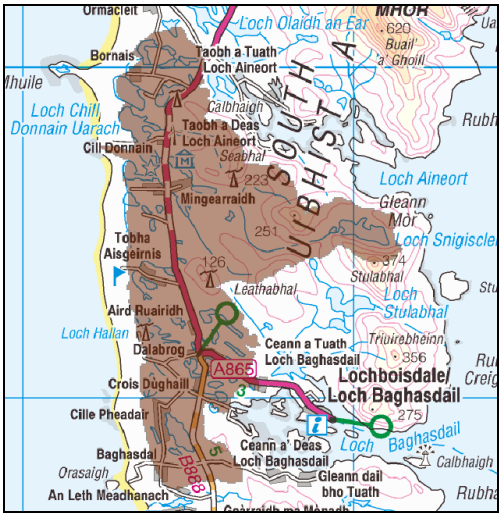
Background

This Potentially Vulnerable Area on South Uist stretches from Rubha Aird a Mhuile to Boisdale (shown below). It extends either side of the A865 as far east as Loch Snigiscleit and is approximately 50km^2.

The majority of the properties are located to the west of the A865.



The area is generally low-lying with numerous lochs and interconnected drainage channels. To the west, the area is fringed by machair.

There are approximately 30 residential and fewer than 10 non-residential properties at risk of flooding.

The Annual Average Damages are estimated to be £180,000 with around two-thirds caused by river flooding.

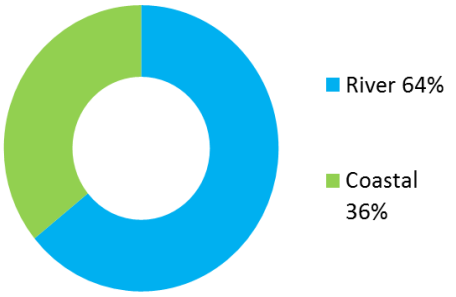


Figure 1: Annual Average Damages by flood source

Summary of flooding impacts

River flooding is centred around lochs to the west of the A865. During floods the lochs extend across the low lying surrounding areas, resulting in them connecting in many places. The coastal flood risk is from Loch Boisdale in the south east and Trolaisgeir in the north west. Coastal flooding enters near these locations and is then able to spread further across low lying areas in the west.

The risk of flooding to people and property, as well as to community facilities, utilities, the transport network, designated sites and agricultural land is summarised in Table 1.

Eight designated cultural heritage sites are at risk of flooding, as are extensive areas of environmental importance. The sites include Bornish and Ormiclate Machairs Site of Special Scientific Interest (SSSI), Loch Hallan SSSI, South Uist Machair Special Area of Conservation and Special Protection Area (SPA) and Kilpheder to Smerclate, South Uist SPA.

The damages associated with floods of different likelihood are shown in Figure 2.

The location of the impacts of flooding is shown in Figure 3. Most of the impacts of flooding are found in the south west of the area.

	1 in 10 High likelihood	1 in 200 Medium likelihood	1 in 1000 Low likelihood
Residential properties (total 270)	20	30	30
Non-residential properties (total 70)	<10	<10	<10
People	50	60	70
Community facilities	0	0	0
Utilities assets	0	0	0
Transport links (excluding minor roads)	Roads at 40 locations	Roads at 40 locations	Roads at 50 locations
Environmental designated areas (km^2)	7	8	8
Designated cultural heritage sites	5	7	7
Agricultural land (km^2)	7.4	8.1	8.4

Table 1: Summary of flooding impacts[1]

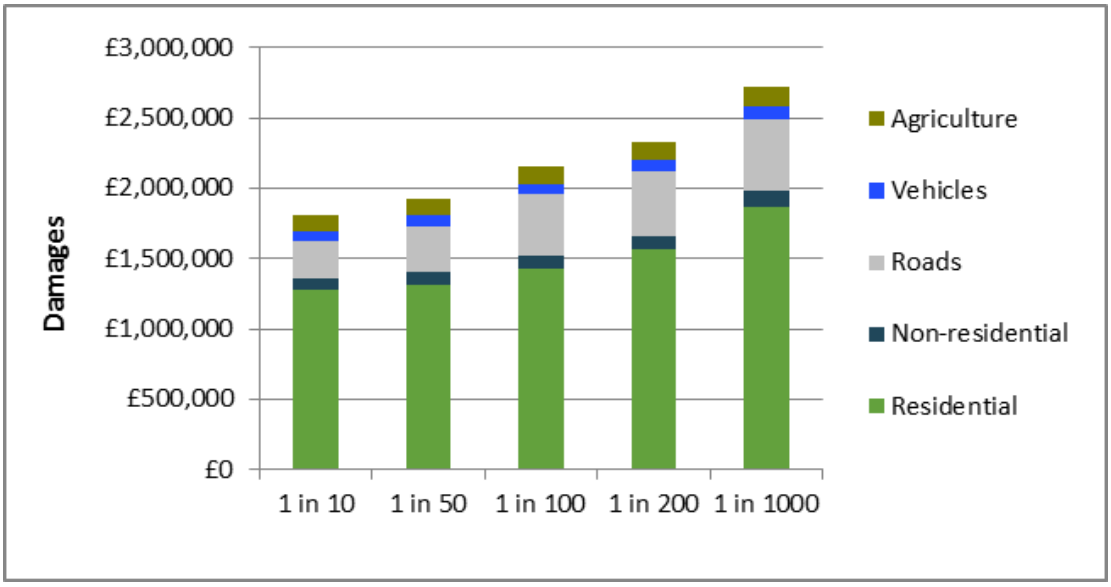


Figure 2: Damages by flood likelihood

[1] Some receptors are counted more than once if flooded from multiple sources

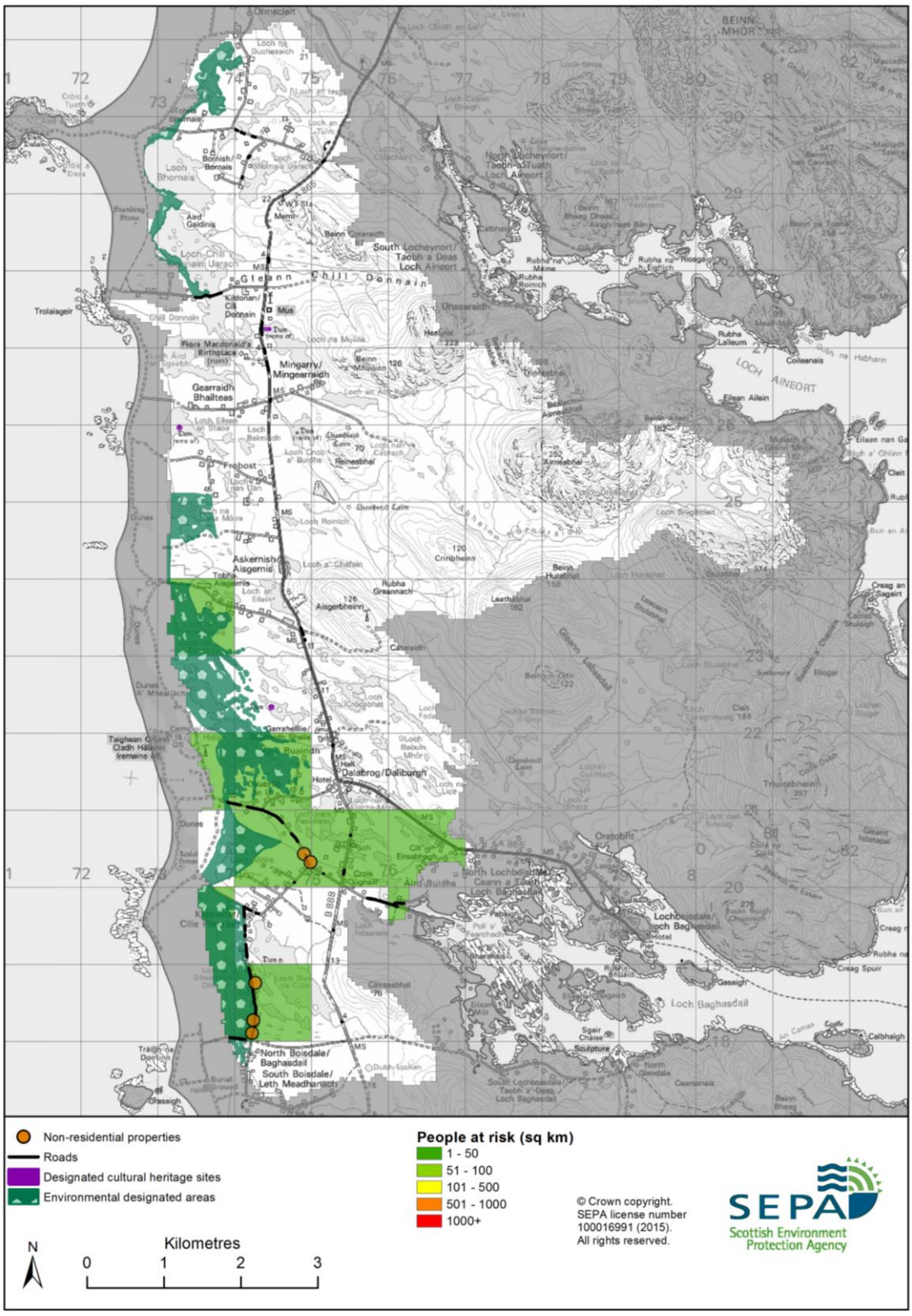


Figure 3: Impacts of flooding

History of flooding

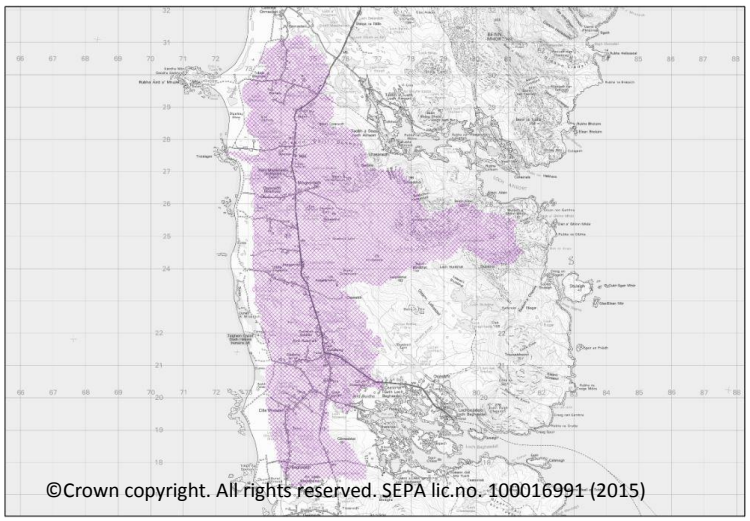
In January 2005 a severe storm hit the west coast of Scotland including the Outer Hebrides. Wave action contributed to significant erosion of the west coast of South Uist and resulted in overtopping of the machair edge at Kilpheder causing extensive flooding of low lying agricultural land.

Although there are no other officially recorded floods in this Potentially Vulnerable Area, coastal flooding has occurred on numerous occasions when storm surge and high tides coincide. An added risk factor is that when coastal flooding occurs it is usually accompanied by high strength winds, which can create waves and cause additional damage.

Objectives to manage flooding in Potentially Vulnerable Area 02/08

Objectives provide a common goal and shared ambition for managing floods. These objectives have been set by SEPA and agreed with flood risk management authorities following consultation. They were identified through an assessment of the underlying evidence of the causes and impacts of flooding. Target areas have been set to focus actions; they do not necessarily correspond to areas at risk in SEPA's flood map. The objectives below have been set for Bornish to Boisdale Potentially Vulnerable Area.

Reduce risk to southern South Uist from river and coastal flooding

Indicators:	Target area:
• 60 people • £130,000 Annual Average Damages from residential properties • A865 (Mingearraidh) • B888 (Cille Phaedair)	
Objective ID: 200801	

Target area	Objective	ID	Indicators within PVA
Applies across Outer Hebrides Local Plan District	Avoid an overall increase in flood risk	200001	• 30 residential properties • £180,000 Annual Average Damages
Applies across Outer Hebrides Local Plan District	Reduce overall flood risk	200002	• 30 residential properties • £180,000 Annual Average Damages
Applies across Outer Hebrides Local Plan District	Organisations such as Scottish Water, energy companies and Historic Environment Scotland actively maintain and manage their own assets, including the risk of flooding. These actions are not detailed further in the Flood Risk Management Strategies.		

Actions to manage flooding in Potentially Vulnerable Area 02/08

Actions describe where and how flood risk will be managed. These actions have been set by SEPA and agreed with flood risk management authorities following consultation. Selection of actions to deliver the agreed objectives was based on a detailed assessment and comparison of economic, social and environmental criteria. The actions shaded and then described below have been selected as the most appropriate for Bornish to Boisdale Potentially Vulnerable Area.

Selected actions					
Flood protection scheme/works	*Natural flood management works*	New flood warning	Community flood action groups	*Property level protection scheme*	*Site protection plans*
Flood protection study	*Natural flood management study*	*Maintain flood warning*	Awareness raising	*Surface water plan/study*	Emergency plans/response
Maintain flood protection scheme	Strategic mapping and modelling	Flood forecasting	Self help	Maintenance	Planning policies

Action (ID):	**NEW FLOOD WARNING** (2000020010)		
Objective (ID):	Reduce overall flood risk (200002)		
Delivery lead:	SEPA		
Status:	**Not started**	Indicative delivery:	**2016-2021**
Description:	The area under consideration covers the coastline of the Outer Hebrides. A flood forecasting system will be required before flood warnings can be implemented for this area.		

Action (ID):	**FLOOD PROTECTION STUDY** (2008010005)		
Objective (ID):	Reduce risk to southern South Uist from river and coastal flooding (200801)		
Delivery lead:	Comhairle nan Eilean Siar		
Priority:	National:	Within local authority:	
	98 of 168	**3 of 5**	
Status:	**Not started**	Indicative delivery:	**2016-2021**
Description:	Further investigation into the operation of the existing sluice gates is recommended to determine their impact on flood risk and the feasibility of improving their operation for this purpose (installation/modification of river control structures action). A dune management plan is to be developed for the machair and sand dunes on the west coast of South Uist to cover natural flood management, including wave attenuation and considering the long term stability of		

	the coastline and flood risk management. Other actions may also be considered to develop the most sustainable range of options.
Potential impacts	
Economic:	The business case for improvements to the existing sluice gates would need to be developed as part of the study. This would include confirming the number of properties which may benefit and any traffic disruption which could be avoided through improvements to existing structures. Potentially up to 18 residential and five non-residential properties may benefit from future flood protection works.
Social:	Around 40 people may benefit from improvements to existing structures. A reduction in flood risk would have a positive benefit to the health and wellbeing of the community and socially vulnerable people. Works to improve the operation of the existing sluices and floodgates may reduce stress and uncertainty for the residents in this area, and also reduce disruption through reduced flooding of roads. Natural flood management actions can restore and enhance natural environments and create opportunities for recreation and tourism. Negative impacts through disturbance to the local community during the construction phase should be considered.
Environmental:	Flood protection studies should consider the positive and negative impacts of proposed actions on the ecological quality of the environment. Natural flood management actions can have a positive impact by restoring and enhancing natural habitats. Opportunities to mitigate any environmental impacts may include design and timing of works. The sluices are existing structures and any improvements are unlikely to have significant impacts. Improvements of the existing structures will prevent their deterioration and reduce impacts from flooding such as pollution. To be in accord with the FRM Strategy, the responsible authority should seek to ensure as part of the study that the action will not have an adverse effect on the integrity of the South Uist Machair and Lochs Special Protection Area, Kilpheder and Smerclate South Uist Special Protection Area, South Uist Machair Special Area of Conservation, and Sound of Barra Special Area of Conservation. There is potential for future maintenance or restoration works to impact on the Loch Hallan Site of Special Scientific Interest.

Action (ID):	**STRATEGIC MAPPING AND MODELLING** (2000020016)		
Objective (ID):	Reduce overall flood risk (200002)		
Delivery lead:	SEPA		
Status:	**Not started**	Indicative delivery:	**2016-2021**
Description:	SEPA will be seeking to develop the flood hazard mapping in the South Uist to North Uist area to improve understanding of the coastal flood risk. The extent and timing of the completed improvements will be dependent on detailed scoping and data availability.		

Action (ID):	**FLOOD FORECASTING** (2000020009)		
Objective (ID):	Reduce overall flood risk (200002)		
Delivery lead:	SEPA		
Status:	**Existing**	Indicative delivery:	**Ongoing**
Description:	The Scottish Flood Forecasting Service is a joint initiative between SEPA and the Met Office that produces daily, national flood guidance statements which are issued to Category 1 and 2 Responders. The service also provides information which allows SEPA to issue flood warnings, giving people a better chance of reducing the impact of flooding on their home or business. For more information please visit SEPA's website. The Potentially Vulnerable Area is within the 'Western Isles' flood alert area.		

Action (ID):	**COMMUNITY FLOOD ACTION GROUPS** (2000020012)		
Objective (ID):	Reduce overall flood risk (200002)		
Delivery lead:	Community		
Status:	**Existing**	Indicative delivery:	**Ongoing**
Description:	The Iochdar Flood Action Group and the Middle District Flood Action Group were formed in the immediate aftermath of the January 2005 storm. Public workshops and meetings have been held to discuss coastal erosion and flooding issues.		

Action (ID):	**SELF HELP** (2000020011)		
Objective (ID):	Reduce overall flood risk (200002)		
Delivery lead:	—		
Status:	**Existing**	Indicative delivery:	**Ongoing**
Description:	Everyone is responsible for protecting themselves and their property from flooding. Property and business owners can take simple steps to reduce damage and disruption to their homes and businesses should flooding happen. This includes preparing a flood plan and flood kit, installing property level protection, signing up to Floodline and Resilient Communities initiatives, and ensuring that properties and businesses are insured against flood damage.		

Action (ID):	**AWARENESS RAISING** (2000020013)		
Objective (ID):	Reduce overall flood risk (200002)		
Delivery lead:	Responsible authorities		
Status:	**Existing**	Indicative delivery:	**Ongoing**
Description:	SEPA and the responsible authorities have a duty to raise public awareness of flood risk. Improved awareness of flood risk and actions that prepare individuals, homes and businesses for flooding can reduce the overall impact. From 2016 SEPA will engage with the community through local participation in national initiatives, including partnership working with Neighbourhood Watch Scotland. In addition, SEPA will engage with local authorities and community resilience groups where possible. Local authorities will be undertaking additional awareness raising activities. Further details will be set out in the Local FRM Plan.		

Action (ID):	**MAINTENANCE** (2000020007)		
Objective (ID):	Reduce overall flood risk (200002)		
Delivery lead:	Comhairle nan Eilean Siar, asset / land managers		
Status:	**Existing**	Indicative delivery:	**Ongoing**
Description:	Local authorities have a duty to assess watercourses and carry out clearance and repair works where such works would substantially reduce flood risk. They produce schedules of clearance and repair works and make these available for public inspection. Scottish Water undertake inspection and repair on the public sewer network. Asset owners and riparian landowners are responsible for the maintenance and management of their own assets including those which help to reduce flood risk. Freshwater lochs located in the Potentially Vulnerable Area are interconnected by a system of drainage ditches. These drainage ditches outfall to the Atlantic Ocean in the north-west through the Roe Glas floodgate and in the southeast to the Minch through the Strom floodgate and dam system. Efficient land drainage is dependant on regular maintenance of drainage ditches, canals and associated structures. Maintenance arrangements for these features rest primarily with the land managers and with the Scottish Government's Rural Payments and Inspections Directorate (SGRPID).		

Action (ID):	**EMERGENCY PLANS/RESPONSE** (2000020014)		
Objective (ID):	Reduce overall flood risk (200002)		
Delivery lead:	Category 1 and 2 Responders		
Status:	**Existing**	Indicative delivery:	**Ongoing**
Description:	Providing an emergency response to flooding is the responsibility of many organisations, including local authorities, the emergency services and SEPA. Effective management of an emergency response relies on emergency plans that are prepared under the Civil Contingencies Act 2004 by Category 1 and 2 Responders. The emergency response by these organisations is co-ordinated through regional and local resilience partnerships. This response may be supported by the work of voluntary organisations.		

Action (ID):	**PLANNING POLICIES** (2000010001)		
Objective (ID):	Avoid an overall increase in flood risk (200001)		
Delivery lead:	Planning authority		
Status:	**Existing**	Indicative delivery:	**Ongoing**
Description:	Scottish Planning Policy and accompanying Planning Advice Notes set out Scottish Ministers' priorities for the operation of the planning system and for the development and use of land. In terms of flood risk management, the policy supports a catchment-scale approach to sustainable flood risk management and aims to build the resilience of our cities and towns, encourage sustainable land management in our rural areas, and to address the long-term vulnerability of parts of our coasts and islands. Under this approach, new development in areas with medium to high likelihood of flooding should be avoided. For further information on the application of national planning policies see Annex 2.		