



Scotland's centre of expertise for waters

Dynamic Coast - National Coastal Change Assessment: Coastal Erosion Policy Context



DANGER
These dunes are
very unstable due
to coastal erosion
Keep away from
top and bottom





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National Coastal Change Assessment Steering Committee



Coastal Erosion Policy Context

Dynamic Coast – Scotland's National Coastal Change Assessment

Executive Summary

- A wide range of policies and draft policies exist on coastal erosion in Scotland that nationally acknowledge the importance of coastal erosion and highlight the need to incorporate these aspects into regional plans and local planning decisions. They also acknowledge the anticipated increasing risk associated with climate change. Examples include Scottish Planning Policy, National Planning Framework 3 and the National Marine Plan.
- Despite this, the implementation of these national level strategic policies may prove problematic as they appear to be contradictory in places. For example, SNH's policy of working 'with natural processes' may contradict with Historic Scotland's 'care and protect role'. The word "protection" suggests fixing the coastline via structures to safeguard the landward assets in space, whereas working with natural processes suggests allowing flexibility and dynamism of coastline positioning through time.
- At a regional level, and where policies are present and current, considerable clarity and detail is offered for the management strategy adopted for each section of the coast. However, only a few Local Authorities (LAs) have updated Shoreline Management Plans (SMPs). Four of 25 Local Authorities have an SMP, which relates to 7 % (1,232 km) of Scotland's shoreline. A further two LAs are currently in development and will cover a further 2 % (371 km) of the shoreline. Of the 15 LAs that have information, 4 LAs rely on national level policies (for 85 km of the LAs coast or 0.5 % of the national coast) and do not have any specific coastal erosion policies of their own, whereas 5 have a regional policy (12,807 km of the LAs coast or 69 % of the national coast). There is a further 4,183 km of coast (22 %) where information on the current policy status has not been supplied.
- Terrestrial development plans expect that new developments should avoid areas at risk from coastal erosion or coastal flooding (SPP para 88). Where SMPs exist, they serve to identify where erosion is anticipated and the policy approach adopted if erosion is realised. In the absence of an SMP it is unclear the extent to which robust audits of the shoreline are undertaken to inform planning decisions. To date the existing extent of SMPs is limited and so one aim of the NCCA is to provide a clear evidence base of past change. Together with anticipated future change, this will inform potential gaps and facilitate the drafting of any future SMPs. In addition, whereas some LAs undertake routine reviews of coastal defences, SPP states that an up-to date audit of green infrastructure should inform planning (SPP para 222). It remains unclear how this is being undertaken and the extent to which natural coastal defences are identified, included and by whom.
- At present SPP guidance on coastal erosion risk for various coastal development contexts is as follows:
 - 1) For new development – SPP says avoid new development in potentially erosional (and or flood risk) areas and develop plans that take account of these risks;
 - 2) For existing developments in the coastal zone where SMPs exist they serve as the

main tool with which to identify the policy approach to erosion risk;

- 3) For existing developments in the coastal zone where no SMP exists then the NCCA will identify erosion and better inform decision making;
- 4) NPF3 (2014) Scotland's Third National Planning Framework – adaptation strategies are expected on both the developed and undeveloped coast but, as this is a high-level document, it says little on the implementation of these strategies. More detailed approach to development and flood risk is set out in SPP although the possibility exists that new development might be allowed within existing developed areas that are currently protected;
- 5) The National Marine Plan (NMP) itself does not identify erosion risk and areas that new development should avoid, but instead directs towards flood risk hazard maps and the outputs of NCCA. Regional Marine Plans (RMP) are not yet in place but may be expected to identify erosion risks and areas that new development should avoid;
- 6) In all the national level strategies, there is direct or oblique reference to the need for authorities to consider adaptation strategies to reduce coastal erosion risk now and in the future. However, there is a lack of definition about what adaptation means and what it might entail and thus of guidance as to the methods that might be employed to enable this to occur. There may be a spectrum of adaptation methods available depending on the coastal context. At one extreme, adaptation may involve the wholesale removal of houses, infrastructure, and communities to more resilient locations, away from those areas at risk of flooding and erosion. At the other extreme, it may be interpreted as allowing existing sea walls to be built higher or defences maintained or extended at present levels;
- 7) The permissive nature of coastal erosion policies within legislation is noted across the UK (ref DEFRA FECRM) and in this regard Scotland is no different. It is unclear if this 'optionality' is conducive to developments being built in areas which are known to be erosional, although anecdotal evidence suggests this may be an issue.

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1.0 Questions

This review aims to consider the following questions:

1. Where do the current coastal erosion responsibilities lie and what is the procedure for addressing any coastal erosion issue?
2. Do the existing national policies adequately take account of coastal erosion?
3. Do the existing regional place-specific policies and generic policies adequately take account coastal erosion?
4. Where are the current policy gaps?
5. Are the current policies proportionate to the nature and extent of the anticipated future risks?
6. Where are the future policy gaps?

1.1 Roles and responsibilities CPA & FRMA

This section outlines the existing roles and responsibilities (SNH Local Authorities handbook v4).

1.2 Coast Protection Act (1949)

Coast protection in Scotland is at the discretion of the landowner but formal coast protection schemes are controlled by Scottish Ministers and the Coast Protection Authorities (CPAs), under the [Coast Protection Act 1949 \(Part I\)](#). All coastal local authorities are CPAs. The CPAs, however, also have 'permissive' (discretionary) powers to undertake certain coast protection works. Thus, the CPA will be a regulatory body in schemes brought forward by private landowners, or may be both regulator and developer for their own schemes, arguably a weakness of this legislation. No person is liable or subject to an obligation to maintain or repair any works constructed, altered or improved under a coast protection scheme constructed under the Act or where that person may have previously been expected to undertake these activities by reason of tenure, custom, prescription or otherwise (S15). However, if a coast protection authority views works are necessary or expedient, a notice can be served requiring that person to undertake that work. If this is not done, the coast protection authority can carry out the works themselves and recover costs from the landowner. However, any person who carries out coast protection work, other than maintenance or repair without consent in writing from the coast protection authority is guilty of an offence. It is also prohibited to excavate or remove any materials (other than minerals more than fifty feet below the surface) on, under or forming part of any portion of the seashore.

Coast protection work is defined as any work of construction, alteration, improvement, repair, maintenance, demolition or removal (including the sowing or planting of vegetation) for the purpose of the protection of any land against erosion or encroachment by the sea. It includes in '*protection from the sea*' any channel, creek, bay or estuary and the tidal part of any river. However, the Act specifically excludes from its provisions certain stretches of tidal waters that are specified in the Fourth Schedule (Waters excluded for purposes of definitions of "sea" and "seashore"). This means for some local authorities the extent of powers under the Act excludes inner areas of estuaries. Such areas are more sheltered but where coastal erosion does occur, the local authority does not have any powers under the Coast Protection Act 1949. These excluded areas are:

- The River Clyde, above a line drawn from the seaward or western end of the Princes Pier, Greenock, to the seaward end of Craigendoran Pier.
- The River Dee (Aberdeenshire), above a line joining the seaward end of the south breakwater and the seaward end of the north pier at Aberdeen Harbour.
- The River Forth, above a line drawn between Hound Point on the south bank and Hopeward Point on the north bank.
- The Water of Leith, above a line drawn from the seaward end of the east breakwater to the seaward end of the west breakwater at the entrance to the harbour and docks of Leith.
- The River Tay, above a line drawn from the northern end of the east pier at Tayport Harbour to the point where the centre line of Strips of Craigie Road, Dundee, produced in a southerly direction crosses high-water mark of ordinary spring tides.

Part I of the Coast Protection Act 1949 identifies the main procedures for the protection of non-agricultural land. Section 4 (1) of the Act empowers CPAs to carry out such coast protection works, whether inside or outside their area, as may appear to them to be necessary or expedient for the protection of land in their area. Expedient is not defined within the Act but this generally means actions that are convenient or practical. This means unlike other legislation, in Scotland, the Coast Protection Act has no requirement for any works undertaken at the coast to be sustainable or proportionate to the erosion risk. This possibility may point contrast the duty placed on all public bodies within Section 44 of the Climate Change (Scotland) Act, to act in the way best calculated to help deliver the climate change adaptation programme.

In England and Wales, the Flood and Water Management Act 2010 makes provision for flood and coastal erosion risk management and makes significant amendments to the Coast Protection Act 1949 that apply to England and Wales. This includes amending Section 4 (1) from provisions to carry out work that may appear necessary or expedient to works may only be carried out if the following conditions are satisfied:

1. the authority thinks the work desirable having regard to the national flood and coastal erosion risk management strategies under sections 7&8 of the Flood and Water Management Act 2010
2. the purpose of the work is to manage a coastal erosion risk, within the meaning of Part 1 of the Flood and Water Management Act 2010 in the authorities district (a risk in respect of an occurrence assessed and expressed (as for insurance and scientific purposes) as a combination of the probability of the occurrence with its potential consequences)

In England and Wales, regulations have also been passed revoking or re-defining areas excluded under the Forth Schedule of the Coast Protection Act. These regulations were recently consolidated in England by The Coast Protection (Variation of Excluded Waters) (England) Regulations 2015.

It should be noted that the CPA's powers are permissive and not mandatory, so that a CPA has the option to allow natural processes to take place without intervention, i.e. a 'do nothing' option. The Act empowers the CPA to make a Coast Protection Scheme which requires the approval of the Scottish Ministers who, in giving approval for a scheme, may direct that works under the scheme have deemed planning permission.

As the decision to protect land from the sea is ultimately that of the landowner, the Act also provides for any landowner to undertake a coast protection scheme to defend their own land, for example a golf course or a building, from marine erosion. Landowners may act individually or jointly to promote a scheme. Anyone wishing to undertake a scheme must seek authority from the CPA, except in the case of a statutory body, a highway authority or a harbour authority carrying out coast protection works under another enactment. This may include, for example, works ensuring the safety of railway tracks. These bodies must, nonetheless, give 28 days' notice to the CPA.

1.3 Flood Risk Management (Scotland) Act 2009

The main purpose of the [Flood Risk Management \(Scotland\) Act 2009](#) (FRM Act) is to improve the assessment and sustainable management of flood risk across Scotland, where "flood risk" means the combination of the probability of a flood and of the potential adverse consequences associated with a flood for human health, the environment, cultural heritage and economic activity. This is supported by new duties on local authorities, SEPA, Scottish Water, the National Park Authorities, Forestry Commission Scotland and Scottish Ministers to exercise their flood risk related functions with a view to reducing overall flood risk. This includes managing flood risk in a sustainable way, promoting sustainable flood risk management, raising public awareness of flood risk and contributing to the achievement of sustainable development. SEPA is Scotland's strategic flood risk authority and national flood forecasting and warning authority.

The FRM Act introduces a more sustainable and risk based approach to managing flooding, suited to the needs of the 21st century and to the impact of climate change. It also creates a more joined up and coordinated process to manage flood risk at a national and local level. Specific measures within the FRM Act include:

- a. a framework for coordination and cooperation between all organisations involved in flood risk management;
- b. an emphasis on sustainable flood management and the need to work with natural processes to reduce impacts;
- c. National Flood Risk Assessment to identify Potentially Vulnerable Areas;
- d. Preparation of maps of flood hazard and risk;
- e. SEPA to produce Flood Risk Management Strategies and lead local authorities to produce Local Flood Risk Management Plans to identify the most sustainable actions to manage flood risk in Potentially Vulnerable Areas;

The "flood related functions" within the FRM Act are restricted to functions designated by the FRM Act (e.g. flood risk assessment, maps, plans and other functions). The FRM Act allows the Scottish Ministers to specify functions under other enactments as a "flood related function" by order. However, to date no order has been issued. This means "flood related functions" does not currently include relevant functions specified in other enactments e.g. Coast Protection Act 1949, Roads (Scotland) Act 1984. The FRM Act also does not include any modifications (minor or consequential) to the Coast Protection Act 1949 or specifically include any reference to coastal erosion. The FRM Act does include sections that can be interpreted as including coastal erosion within Flood Risk Management Planning, but coastal erosion is not a term used within the FRM Act:

- When carrying out the National Flood Risk Assessment, SEPA must take account as far as possible issues such as geomorphological characteristics and natural features and characteristics (S9). Natural features and characteristics are defined as those which contribute to the transporting and depositing of sediment and the shape of coastal areas (S20).

- SEPA are to assess the possible contribution alteration (including enhancement) or restoration of natural features and characteristics could contribute to the management of flood risk (S20).
- In setting objectives and actions for the Flood Risk Management Strategies, SEPA must take account of, so far as relevant, S20 and S9.
- SEPA are to prepare maps of artificial structures and natural features the removal of which SEPA considers would significantly increase the risk of flooding (and indicate whether it was constructed under section 56 of the FRM Act of section 2 of the 1961 Act). Scottish Ministers can specify other information that these maps must contain in regulations, but no regulations have yet been passed (ie If a feature is not part of a flood protection scheme under the 2009 Act, an interpretation is that SEPA do not need to identify any other structures).

1.4 Scottish Planning Policy

The [Scottish Planning Policy 2014](#) (paragraphs 87-91; 254-268) identifies that planning authorities must have regard to the probability of flooding from all sources and take flood risk into account when preparing development plans and determining planning applications. Prospective developers should take flood risk into account and the ability of future occupiers to insure development before committing themselves to a site or project. They should also undertake flood risk assessments and drainage assessments where required and implement agreed measures to manage flood risk. A planning authority must, where a planning application relates to a development that is likely to result in a material increase in the number of buildings at risk of being damaged by flooding, require from the applicant an assessment of flood risk in respect of the development (s.42 of 2009 Act).

SEPA provides flood risk maps for the whole of Scotland which presently form the basis for identifying flood risk areas. Flood risk is a material consideration in planning decisions for sites which have a history of flooding, are sited on a flood plain or low lying coastal land, are adjacent to a watercourse or drained by a culvert, or have drainage constraints or are otherwise poorly drained. It is for the LA to decide, but this may be limited by the availability of any official record of flooding, or if it occurred outwith the corporate memory of current staff. See SEPA web site for [Flood maps](#).

A planning authority must consult SEPA on any planning application where the development is likely to result in a material increase in the number of buildings at risk of being damaged by flooding. If the information to consider this is not provided with a planning application, the planning authority must require a flood risk assessment. Where a planning authority grants planning permission against SEPA's advice, they must notify Scottish Ministers, who may call it in.

For development planning, SEPA advises Local Planning Authorities to ensure delivery of Strategic Flood Risk Assessment, to provide an overview of flood risk in areas proposed for development. SEPA has prepared guidance on [Strategic Flood Risk Assessments](#).

Further advice is contained in Online Planning advice on flood risk <http://www.gov.scot/Topics/Built-Environment/planning/Policy/Subject-Policies/natural-resilient-place/Flood-Drainage/Floodrisk-advice>.

1.5 A practitioner's perspective

The requirements and provisions of the Coast Protection Act 1949 remain implemented and utilised by Local Authorities, however much of the coastal work carried out by Local Authorities and private landowners relates to maintenance and repair of existing coastal defences, and therefore many of

the procedures within the Act are used very infrequently by the CPA. It is also worth noting that there is a general lack of awareness amongst private landowners of the requirements of the Act and the need for the written consent of the CPA when undertaking coast protection works, which are not maintenance and repair of existing coastal defences.

National, Regional, and Local Planning Policy and Guidance regarding the coast is generally implemented by Coastal Practitioners and Planners within Local Authorities through the planning system in response to individual planning applications. In addition to the above policies some Local Authorities also have specific technical guidance notes (usually in relation to the management of flood risk for development and including guidance on coastal flooding and erosion), which underpin Local Planning Policy, and it is these documents that are most often used by Coastal Practitioners in Local Authorities when providing technical comments on coastal flood and erosion matters on planning applications. Ultimately, it is at the discretion of the Planners, and/or the Committee, as to the granting/refusal or the placing of conditions on a planning application, and therefore the technical advice of the Coastal Practitioners may or may not be adopted.

One of the issues that Local Authorities are regularly faced with concerning coastal management is the question of land ownership and the ownership of coastal walls that may or may not be deemed to be formal coastal defences. Regular enquiries are received regarding the maintenance, and ultimately the ownership, of coastal walls bounding or adjacent to a property or properties, and the answer to the ownership question can vary widely. For example, coastal walls in urban areas are often historical with some built by Burgh administrations, and with time these walls have passed into the deeds of the properties that the walls provide boundaries to. However, coastal walls can also be omitted from deeds when properties or land changes ownership, and the ownership of the coastal wall either remains with the previous owner or developer or, over time, becomes owner-less. This creates a complicated patch work of ownership, which must be navigated, often with extensive input from solicitors and requiring complex land searches, before maintenance and ultimately coastal management policies can be implemented. It is not uncommon for Local Authorities to become obliged to step in and effectively “adopt” a coastal wall if land ownership research cannot conclusively find an owner. This situation can often arise from structural failure of a coastal wall, and therefore leads to a reactive, as oppose to a proactive approach, to both coastal maintenance and ultimately coastal management planning.

Whilst some Local Authorities have detailed coastal management policies (e.g. a Shoreline Management Plan) and a system for prioritising coast protection works, these can often be affected by democratic or public pressure regarding a local issue. Such occurrences are difficult to predict, and often arise from a determined local group with links to those in Local and/or National Government. This can lead to Local Authorities action and commit funds to local issues, which are not part of the regional priorities defined in policies. Whilst coastal management planning (e.g. the production of a Shoreline Management Plan, or equivalent, and the implementation of the policies contained therein) is clearly best practice for Local Authorities with a coastal boundary, there is a major question regarding the funding of such policies, which due to the nature of coastal management are often long term in nature. The nature of Local Authority funding and the nature of Local Authority budget planning does not generally lend itself to the support of long term policies, and this has the potential to lead to coastal policies becoming aspirations that are difficult to realise.

2.0 Discussion

This section outlines the discussion and responses to the questions above.

2.1 Do the existing national policies adequately take account of coastal erosion?

- 1) In large part, coastal erosion is appropriately considered across several levels of land use planning and in general the links are identified across sectors or themes at the national policy level. However, where there are areas of overlap there exists a lack of clarity and thus a potential for conflict between various agencies' policies.
- 2) The 1949 Coastal Protection Act does not require the coast to be managed sustainably, use a risk based approach or take account of climate change (a problem given sea level rise). No legislation has superseded it.
- 3) Under 1949 Coastal Protection Act Local Authorities are empowered, but not obliged, to undertake coastal works and the Flood Risk Management (Scotland) Act (2009) comes into play where a Potentially Vulnerable Area (PVA) has an objective to reduce flood risk. The result is that there exist sufficient loopholes in existing legislation that do not encourage a holistic and strategic approach to addressing the impacts of both erosion and any associated flooding exacerbated by erosion.
- 4) Local Authority grant from Scottish Government is not ring fenced and since there is no requirement to undertake coast protection then local spending may be dictated by other priorities.
- 5) Since the Local Authority boundaries are not consonant with the boundaries of the 7 coastal sediment cells and 24 subcells of mainland Scotland (the 5 islands cells are atypical in this regard) then there is a real imperative that where adjacent authorities have SMPs that they are closely interlinked to ensure seamless delivery of policy across the local authority boundaries. It follows that this may be the case where adjacent local authorities do not have an SMP or do not have a stated policy on coastal erosion and so cooperation may be absent or not as complete as might be expected.
- 6) A key issue is that SEPA have national responsibility for flooding and flood risk but not for coastal erosion and Local Authorities have powers but no obligation to intervene in cases of coastal erosion. This means that where coastal flooding is the result of an erosional event any actions to reduce flood risk can be incorporated within the Flood Risk Management Planning process. However, where erosion may be occurring, but not linked to a flood risk (or this link is yet to be identified), then there is currently a gap in planning provision that would allow identification of areas at greatest future erosion risk and identify sustainable actions to reduce this risk. The individual landowner (who may or may not wish to engage in any coastal erosion mitigation strategy) or other coastal land user (such as a Port Authority, Scottish Water, Ministry of Defence or Network Rail). The Local Authority may have partial responsibility if it has designed, contributed to, or financed a protection scheme in the past or it has designated a coastal segment as "hold the line" but does not own, or has no funds to enable this strategy to occur. Such a disaggregation of responsibilities may hinder the successful implementation of a strategic and nationally uniform response to erosion issues. Addressing the issue of where erosion and flooding act in combination is likely to become increasingly necessary in the future based on our understanding of anticipated climate change over the coming decades. The NCCA will help identify where these locations may be and serve to encourage cooperation where this may be at present limited or absent.

- 7) Whilst consideration of coastal erosion and its links with coastal flooding and the combined anticipated increase associated with climate change is acknowledged within national policies, there appears to be little or no consideration given to the types of adaptation policies and financial levers which will be required to manage both existing and c future risk.
- 8) In all the national policies reviewed above there is a lack of clarity in the meaning of key words. Few of these key terms are defined within the policies and yet many carry different meanings dependent on the context in which they are used or for the audience to which they are directed. A statement of definition of terminology is important to clarify the meaning in the coastal context of words such as: mitigation, adaptation, risk, vulnerability, sustainability, the coastal zone, the coastline, the shoreline.
- 9) Strategic high level marine objectives (HLMO) in Scotland's Marine Plan have the aim that the marine environment should benefit all of society, contributing to resilient and cohesive communities that can adapt to coastal erosion and flood risk. However, there is no specific guidance on exactly how such a contribution should occur, which organisations should champion such a move and what the specific measures should be (HLMO 6).

The extent to which national policies adequately take account of coastal erosion are depicted in Table 2.1 under a traffic light system where 1 (red) indicates no or an inadequate account of coastal erosion is present, 2 (yellow) indicates partial account taken and 3 (green) indicates that the policy adequately takes account of coastal erosion.

Table 2.1: Summary of the extent to which National Policies adequately take account of coastal erosion. 1 = No, 2 = Partially, 3 = Yes

		Supplied Information? (Y/N)	Have a policy? (Y/N)	Do the existing national policies adequately take account of coastal erosion?	Are the current policies Proportionate to the nature and extent of the anticipated future risks?
National Policies - Government and Agencies	Scottish Government	Y	Y	2	2
	Marine Scotland	Y	Y	2	2
	Historic Scotland	N	-	-	-
	SEPA	Y	Y	3	3
	SNH	Y	Y	3	3
	Transport Scotland	N	-	-	-
	Defence Estates/MoD	N	-	-	-
National Policies - Partners	Adaptation Scotland	Y	N	N/A	N/A
	BGS	Y	N	N/A	N/A
	Crown Estates	Y	N	N/A	N/A
	RCAHMS	Y	N	N/A	N/A
	RSPB	N	-	-	-
	SGEG/SGU	Y	N	N/A	N/A
	SCAPE/St Andrews	N	-	-	-
National Policies outside Scotland	Natural England	N	-	-	-
	Department of Environment, NI	Y	Y	1	1
	Defra (not requested)	N	Y	3	2
	EA (not requested)	N	Y	3	2

2.2 Do the existing regional place-specific policies and generic policies adequately take account coastal erosion?

- 1) Whilst coastal erosion is an acknowledged issue at a national level and within those local authorities that have a coastal erosion policy, the Scottish Government and COSLA have recently agreed that the flood and coast protection component of the General Capital Grant given to local authorities will continue to be exclusively targeted on flood protection schemes and flood risk management and not targeted on coast protection. The Scottish Government consider that councils already have the flexibility to use their General Capital Grant allocation for coast protection if they consider it to be justifiable as a local priority.

- 2) Without a robust evidence base on the extent and state of coast protection measures and structures and where erosion presents pressures that may become more chronic and widespread, local authorities may well be justified in currently directing funds elsewhere, for example, toward flooding. However, a continuation of this policy may result in regional policies on coastal erosion being inadequately resourced at present or in the future. The NCCA will assist in establishing whether coastal erosion is a chronic pressure that requires enhanced resource allocation now and in the future.
- 3) In Scotland, local authorities are the coast protection authorities and have discretionary powers under the Coast Protection Act 1949 to carry out any coast protection work as may be necessary or expedient for the protection of any land against erosion and encroachment by the sea. However, only 9 % of the Scottish coast has full SMP provision in place or under development (6 local authorities, 1,063 km of coast), 69% is covered by the regional policies of 5 local authorities (12,807 km), 4 local authorities (0.5 % of the coast, 85 km) rely on national level policies in the absence of any specific coastal erosion policies of their own and 22 % of the coast (11 local authorities, 4,183 km) have not confirmed their coastal erosion policy (Table 4.2). Substantial parts of the developed coast have no SMP in place.

Table 2.2: Coverage of coastal erosion policies across Scotland

	% of National coastline	Number of Local Authorities
Full SMP (incl. those being developed)	9 %	6
Regional policies	69 %	5
National level policies	0.5 %	4
Not confirmed their policies	22 %	11

- 4) Where place-specific policies are in place (e.g. SMPs and in some cases second generation SMPs) there is good evidence of coastal erosion issues informing the planning process. For example, Fife Council are currently consulting on the potential for managed realignment along part of the Tayport coastline, which is subject to coastal erosion and will increasingly be subject to flooding due to climate change, the outcome of this consultation is not yet determined. Whether such process and outcome is equitably applied to areas of housing or industry is less clear. Even where regional policies are in place, there are examples of planning consent being granted for housing in areas known to be at risk of flooding and erosion (e.g. within Highland Region at Golspie; in the Western Isles, south of Balivanich).
- 5) Local Authorities were surveyed on the provision and adequacy of coastal erosion policies (Figures 2.1 to 2.4). Figure 2.1 shows the extent of coast controlled by local authorities that have supplied information, Figure 2.2 shows the extent of coast controlled by local authorities that have SMPs in place or under development, Figure 2.3 shows the extent of coast controlled by local authorities whose policies are assessed on a 1-3 score to adequately take account of coastal erosion, and Figure 2.4 shows the extent of coast controlled by local authorities whose policies are assessed on a 1-3 score to be proportionate to the nature and extent of the anticipated future risks of coastal erosion.

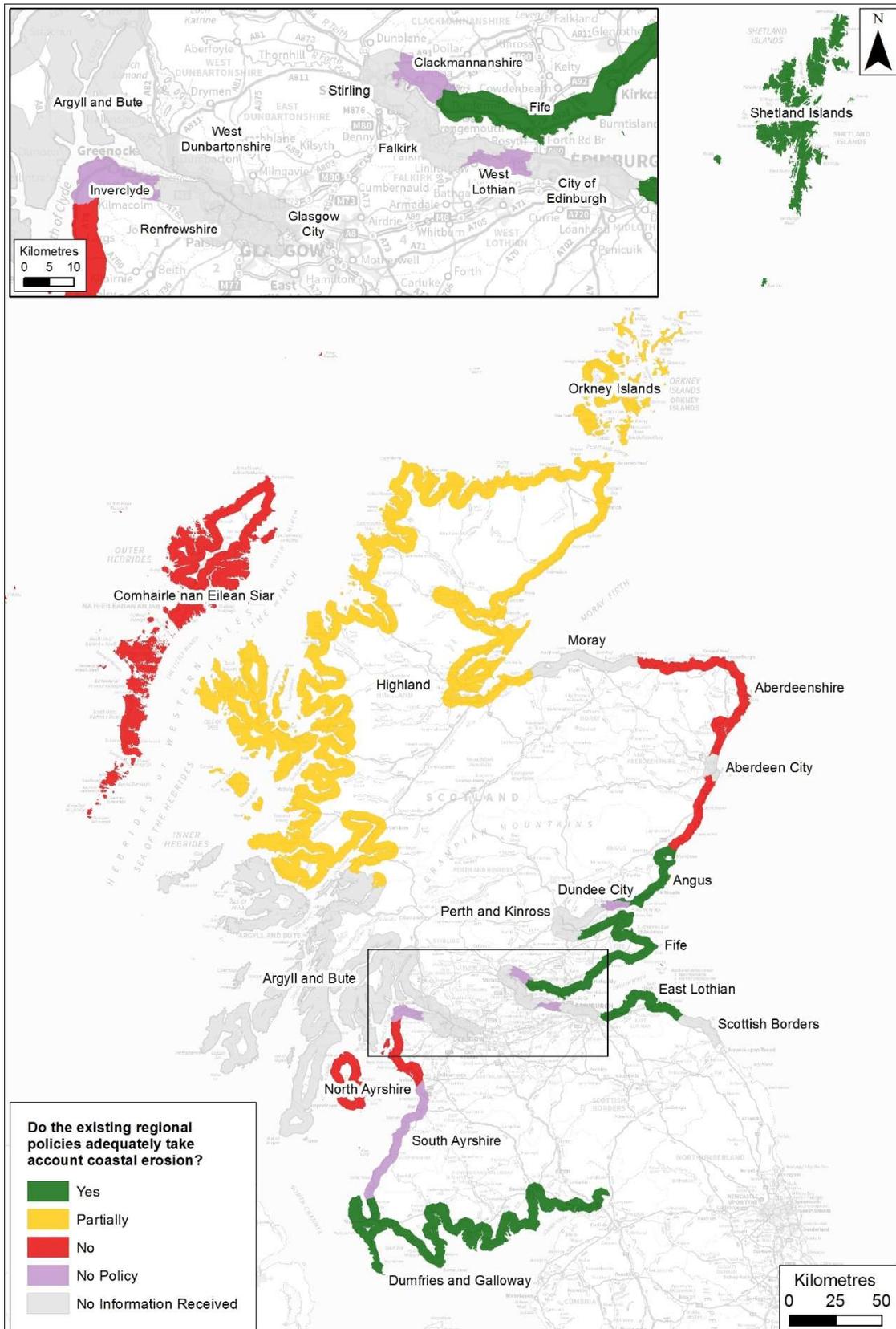


Figure 2.3: Assessment of whether the local authorities existing policies adequately take account coastal erosion.

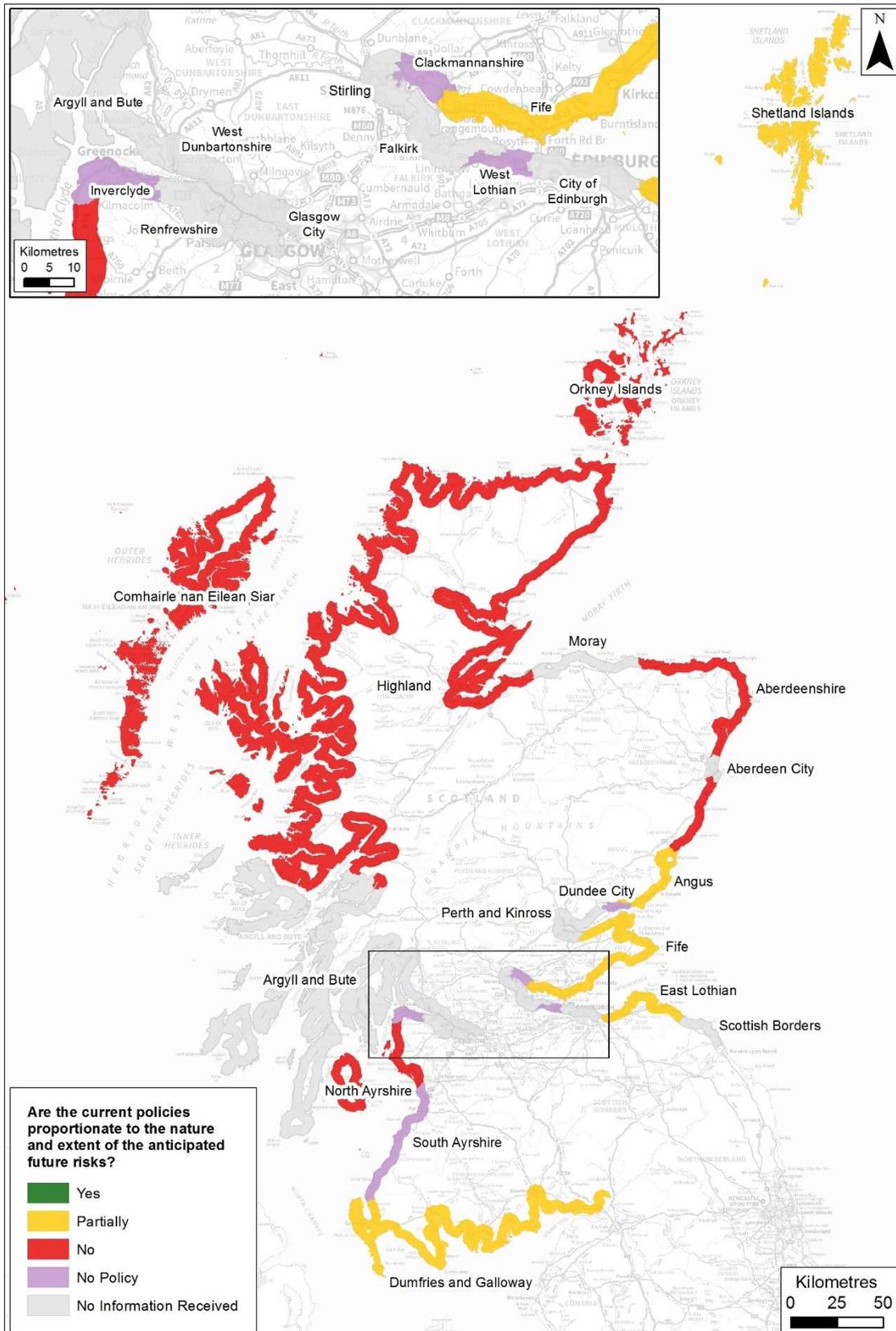


Figure 2.4: Assessment of whether the local authorities existing policies are proportionate to the nature and extent of the anticipated future risks of coastal erosion.

2.3 Where are the current policy gaps?

- 1) Within the coastal planning system there is a legal obligation for terrestrial plans and marine plans to take account of one another and that statutory Regional Marine Plans developed by Marine Planning Partnerships will provide one mechanism through which this can be achieved. However, until Regional Marine planning is fully functional, more focus is needed on alignment and integration of terrestrial/marine policy under current processes. A key issue is to ensure that terrestrial planning by planning authorities overlaps with marine planning in the intertidal zone. There is evidence that some mainland planning authorities work closely with neighbouring authorities (eg. Tayplan; North and South Ayrshire), however, this is not the case everywhere and more focus on close liaison with existing policies and actions is needed to ensure integration with emerging policies and activities arising from the National Marine Plan, Marine Planning Partnerships, and Regional Marine Plans.
- 2) It is also evident that a lack of guidance exists on how some policies may interface with others. For example, Scotland's National Marine Plan (para 4.39) states that Regional Policy should align Regional Marine Plans with terrestrial development plans to reflect coastal areas likely to be suitable for development, and accounting for flood risk and flood hazard maps.
- 3) Scotland's Marine Plan acknowledges that marine, land and water management mechanisms should be responsive and work effectively together, citing integrated coastal zone management (ICZM) as a mechanism. Scotland's response to supporting integrated coastal zone management has been the establishment of Coastal Forums/ Partnerships, non-statutory bodies that contribute to integrated coastal zone management through various mechanisms and facilitation in their areas. However, no coastal zone management plans yet exist in Scotland.
- 4) One mechanism that allows a strategic approach to erosion risk for existing and planned developments in the coastal zone is the Shoreline Management Plan (SMP). However, the 4 fully developed SMPs and the 2 SMPs under development cover only 9% of the Scottish coast. SMPs can be deemed inappropriate for some coasts, but the remainder arguably have no strategic substitute in place.
- 5) Where SMPs exist, they serve as the main tool with which to identify the policy approach to erosion risk for existing developments in the coastal zone but where no SMP exists then the policy is unclear and is likely to be *ad hoc*, or potentially not resourced, with financial support routed to coastal flooding and not coastal erosion
- 6) A key policy gap is that there is no one organisation with overall responsibility for coastal erosion issues. Whereas the policies for addressing coastal erosion lie with Local Authorities, decisions cannot be enforced under the Coast Protection Act 1949. The responsibility for any action ultimately lies with the landowner who may or may not decide to act in accordance with Local Authority policy since that policy is not enforceable in law. Such a disaggregation of responsibilities hinders the successful implementation of a strategic and nationally uniform response to erosion issues. Present SPP guidance is that new development requiring new defences against coastal erosion or coastal flooding will not be supported except where there is a clear justification for a departure. Yet, new development has recently occurred in several locations not free from risk. For example, on Benbecula: new housing built on land reinstated after its erosional loss during a 2005 storm; in Aberdeenshire: unauthorised coast

protection works at Menie golf resort development; in Highland: new housing at erosion and flood-prone Golspie Caravan Park; amongst others despite the existence of such guidance. There is also no requirement for a Local Authority to record past events, so any past information pertaining to a planning application depends solely on staff knowledge. An issue here is that within policy and legislation there exist caveats afforded to planning where “extenuating” circumstances may exist to allow development for reasons that are economic or “in the national interest”. This is a key tenet of the planning system whereby Local Authorities should make decisions in line with national policy and the development plan, unless material consideration indicates otherwise. In a coastal context, where future erosion and flood risk can be demonstrated, these degrees of latitude within the planning decision-making process are problematic and may prove to be unsustainable.

- 7) NPF3 (2014) Scotland's Third National Planning Framework correctly identifies that urban infrastructure will need to change to adapt to the impacts of climate change. NPF3 expects adaptation strategies to be adopted for the undeveloped coast (without detailed guidance of what this might entail) and the guidance offered for the developed coast is to avoid flood and erosion risk areas if possible. The coastal location of many of Scotland's cities means that changes in land use may be needed to achieve more sustainable and resilient patterns of development in the long-term. For example, for those parts of urban areas at risk from coastal erosion and marine flooding. SPP states that a precautionary approach should be taken and this is reflected in the flood risk framework. However, para 264 notes that there are other considerations at the development management stage, and that it is not possible to plan for development solely according to the calculated probability of flood risk. This means that that new development might be allowed within existing developed areas that are currently protected (and might, or might not, be continued to be protected in the future), rather than directing any new development to areas that are coastal erosion and flood risk-free over the long term.
- 8) In a similar vein, NMP & RMP aim to identify erosion risks and areas that new development should avoid but say little about how manage where existing development is currently subject to erosion risk and about situations where possible adaptation or relocation strategies could be pursued. Again, there is an unwritten assumption that any new development might be allowed within existing developed areas that are currently protected (and might, or might not, be continued to be protected in the future), rather than directing any new development to areas that are risk-free over the long term from coastal erosion and flood.
- 9) In all the national level strategies, there is direct or oblique reference to the need for authorities to consider adaptation strategies to reduce coastal erosion risk now and in the future. However, there is a lack of definition about what this might entail and of guidance as to the methods that might be employed to enable this to occur.
- 10) Depending on the coastal context, a spectrum of adaptation methods may be possible although some may not capture the full sense of adaptation. At one extreme the methods might be better termed “resistance-resilience” and may involve artificially maintaining the existing coastal position using hard (structures) or soft (beach nourishment) engineering techniques. There will be coasts where high land values allow this strategy to be economically sustainable, but at an environmental cost. Cooper & Pilkey (2014) question the merit of such schemes where a false sense of security may hinder long-term sustainable options.

- 11) At the other extreme, “adaptation” measures may involve allowing the coastline to migrate landward either naturally as erosion progresses, or in a controlled way via schemes such as managed realignment. This route is increasingly a favoured option for undeveloped estuarine or even open coasts. A more problematic context is on developed coasts that are currently either unprotected or protected by structures that are not deemed to be sustainable or replaceable and where adaptation may involve the removal of houses, infrastructure, and communities away from those areas at risk of flooding and erosion. The removal of housing and relocation of residents is already occurring on parts of the English coast (e.g. Happisburgh) and elsewhere. This form of adaptation is increasingly likely to occur given the rates of sea level rise, coastal flooding and erosion. In economic terms, the influential Stern Report (2006) claims that delaying climate adaptation may be more costly than acting now. Such strategies are under consideration by SEPA and SNH, but exactly how any growing risk is to be managed is a key area of policy that is yet to be fully addressed, not only in Scotland but also at a UK level and further afield.
- 12) It follows that early identification of those coasts most at risk will be key, based upon the current and historical rates of erosion and the varying levels of vulnerability of the infrastructure and communities affected and this is an area where the NCCA can provide guidance.

2.4 Are the current policies proportionate to the nature and extent of the anticipated future risks?

- 1) There is general scientific agreement that the nature and extent of future erosion risk will increase in the future by a significant but unspecified amount. Considering the combined threat of coastal flooding and erosion, and the importance of antecedent conditions, it is likely that the future risks remain underestimated. What is increasingly clear is that for parts of our coast the changes in the shoreline position of the future cannot be accommodated within the present confines of today's shoreline position. Coasts will be forced to move landward by varying amounts dependent upon the coastal gradient, rate of erosion and levels of investment in artificial protection where they currently exist or may be put in place in the future.
- 2) Only a few of the current policies (SMP/MSPs) appear to be comprehensive or holistic enough to deal with the nature and extent of the current erosion risk, most of the others have policy deficiencies. In general, there is little acknowledgement of the impact of future climate change on the adequacy of most current policies. It follows that if the erosion risk increases in the future (due to increases in the frequency and spatial extent of the drivers of erosion) then these policies will progressively become more inadequate to deal with the nature and extent of anticipated future erosion risks (Table 2.1 and Figure 2.3, Table 2.3 and Figure 2.4). Only two organisations appear to have high level policies in place that adequately take account of the impact on coastal erosion and flooding anticipated with future climate change (SNH and SEPA).
- 3) The risk of erosional events is likely to increase on currently eroding coastlines and this is set to extend spatially to affect those coastlines that are not currently eroding but will do so in the future. The forthcoming statutory Regional Marine Plans are required to apply National Marine Plan policy to local circumstances to address local issues and this may well include areas where managed realignment (MR) of the coast may be appropriate. Certainly, few of the current non-statutory plans comprehensively identify potential MR sites.

2.5 Where are the future policy gaps?

- 1) Both marine and terrestrial spatial planning require to be better aligned and more tightly bound together, since the overlapping jurisdictions and limits of responsibility of the existing system inevitably leads to a degree of imprecision in such a dynamic physical context. Indeed, it is arguable that there is no one “top to bottom” integrated policy on coastal erosion.
- 2) At present the legal boundaries of the coast normal to the shore are MLWS and MHWS yet these boundaries are subject to movement on time scales undetected by maps and mapping agencies. In any case the functioning coast extends inland of MHWS and seaward of MLWS and so coastal erosion extends its influence well inland of MHWS in many cases. Parallel to the shore, the legal boundaries are the Local Authority boundaries as opposed to the functional boundaries of the coastal cells (although many Local Authorities now liaise with adjacent authorities in acknowledgment of this). It remains that the coastline should not be seen as an administrative boundary, since it is, and should be treated as, an holistic and integrated unit in both the on/offshore and alongshore directions.
- 3) A key issue in the Scottish context is that there exists no one organisation (or targeted set of legislative provisions) charged with responsibility for the specific context of the coastline (an environment that in places is subject to constant change and migrating boundaries). This makes for unnecessary division and duplication of responsibilities and the potential for poor coordination and policy alignment. Since the coastal environment sits on the margins of the marine planning and terrestrial planning spheres, its special requirements are often bolted onto existing frameworks.
- 4) NPF3 (2014) Scotland's Third National Planning Framework correctly identifies that urban infrastructure will need to change to adapt to the impacts of climate change. One interpretation is that in some contexts the change may involve enhancement of existing structures. Where this is deemed impractical or unsustainable then it may involve the relocation of houses, buildings and infrastructure. Just how such high level strategic planning might be delivered on the ground is less clear and will involve strong political support and resourcing as well as detailed planning guidance at the local level.
- 5) Despite the above, whilst the overarching national policies on coastal erosion may well be in place (albeit in need of improvement in places), a key issue remains that the policies contain enough caveats to allow undesirable departures from the spirit and guidance of national policy to occur, and will continue to occur, at the regional and local levels.

3.0 National Policies – Government & Agencies

This section outlines the relevant policy areas regarding coastal erosion. Numbering within the text refers to the subsection numbering within the original policy document.

3.1 Scottish Government

3.1.1 Scottish Government and funding for coastal defences

The Scottish Government (Environment Directorate) does not have a budget for coastal defence works. Funding is either already allocated to Local Authorities as Coast Protection Authorities or to SEPA in support of their work with Local Authorities in managing flood risk. To this end, £240m has been set aside for the 2016-2022 Flood Risk Management planning cycle to bring forward schemes identified within the FRM strategies. These strategies are developed based on a national / strategic review of flood risk from all sources (via SEPA's Potentially Vulnerable Areas).

Based on an agreement with COSLA, the Scottish Government money has been ring-fenced to flood protection works, potentially at the expense of coastal defence works. As a result, in all but exceptional circumstances, funding the construction and maintenance of coastal defence works remains the responsibility primarily the land owner and, if there is a public benefit, the Local Authority as the Coastal Protection Authority may provide support.

3.1.2 Scottish Planning Policy (2014)

Outcomes: How Planning Makes a Difference

17: NPF3 will facilitate the transition to a low carbon economy, particularly by supporting diversification of the energy sector. The spatial strategy aims to reduce greenhouse gas emissions and facilitate adaptation to climate change.

18. The Climate Change (Scotland) Act 2009 sets a target of reducing greenhouse gas emissions by at least 80% by 2050, with an interim target of reducing emissions by at least 42% by 2020. Annual greenhouse gas emission targets are set in secondary legislation. Section 44 of the Climate Change (Scotland) Act 2009 places a duty on every public body to act in the way best calculated to help deliver the Scottish Government's climate change adaptation programme; and in a way that it considers is most sustainable.

19: The SPP sets out how this should be delivered on the ground. By seizing opportunities to encourage mitigation and adaptation measures, planning can support the transformational change required to meet emission reduction targets and influence climate change.

Policy Principle: This SPP introduces a presumption in favour of development that contributes to sustainable development.

29: This means that policies and decisions should be guided by the following principles...supporting climate change mitigation and adaptation including taking account of flood risk;

Development Planning

30: Development plans should...positively seek opportunities to meet the development needs of the plan area in a way which is flexible enough to adapt to changing circumstances over time¹.

Coastal Planning

87: The planning system should support an integrated approach to coastal planning to ensure that development plans and regional marine plans are complementary. Terrestrial planning by planning authorities overlaps with marine planning in the intertidal zone. On the terrestrial side, mainland planning authorities should work closely with neighbouring authorities, taking account of the needs of port authorities and aquaculture, where appropriate. On the marine side, planning authorities will need to ensure integration with policies and activities arising from the National Marine Plan, Marine Planning Partnerships, Regional Marine Plans, and Integrated Coastal Zone Management, as well as aquaculture.

Development Plans

88: Plans should recognise that rising sea levels and more extreme weather events resulting from climate change will potentially have a significant impact on coastal and island areas, and that a precautionary approach to flood risk should be taken. They should confirm that new development requiring new defences against coastal erosion or coastal flooding will not be supported except where there is a clear justification for a departure from the general policy to avoid development in areas at risk. Where appropriate, development plans should identify areas at risk and areas where a managed realignment of the coast would be beneficial.

89: Plans should identify areas of largely developed coast that are a major focus of economic or recreational activity that are likely to be suitable for further development; areas subject to significant constraints; and largely unspoiled areas of the coast that are generally unsuitable for development. It should be explained that this broad division does not exclude important local variations, for example where there are areas of environmental importance within developed estuaries, or necessary developments within the largely unspoiled coast where there is a specific locational need, for example for defence purposes, tourism developments of special significance, or essential onshore developments connected with offshore energy projects or (where appropriate) aquaculture.

90: Plans should promote the developed coast as the focus of developments requiring a coastal location or which contribute to the economic regeneration or well-being of communities whose livelihood is dependent on marine or coastal activities. They should provide for the development requirements of uses requiring a coastal location, including ports and harbours, tourism and recreation, fish farming, land-based

¹ **SPP's definition of Climate change adaptation:** The adjustment in economic, social or natural systems in response to actual or expected climatic change, to limit harmful consequences and exploit beneficial opportunities.

development associated with offshore energy projects and specific defence establishments.

91: Plans should safeguard unspoiled sections of coast which possess special environmental or cultural qualities, such as wild land. The economic value of these areas should be considered and maximised, provided that environmental impact issues can be satisfactorily addressed.

A Natural, Resilient Place - Valuing the Natural Environment - Policy Principles

194: The planning system should...promote protection and improvement of the water environment, including rivers, lochs, estuaries, wetlands, coastal waters and groundwater, in a sustainable and co-ordinated way;

Maximising the Benefits of Green Infrastructure – Development Planning

222: Development plans should be based on a holistic, integrated and cross-sectoral approach to green infrastructure. They should be informed by relevant, up-to-date audits, strategies and action plans covering green infrastructure's multiple functions, for example open space, playing fields, pitches, outdoor access, core paths, active travel strategies, the historic environment, biodiversity, forestry and woodland, river basins, flood management, coastal zones and the marine environment.

Managing Flood Risk and Drainage - NPF Context

254: NPF3 supports a catchment-scale approach to sustainable flood risk management. The spatial strategy 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. Flooding can impact on people and businesses. Climate change will increase the risk of flooding in some parts of the country. Planning can play an important part in reducing the vulnerability of existing and future development to flooding.

Policy Principles

255: The planning system should promote:

- a precautionary approach to flood risk from all sources, including coastal, water course (fluvial), surface water (pluvial), groundwater, reservoirs and drainage systems (sewers and culverts), taking account of the predicted effects of climate change;
- flood avoidance: by safeguarding flood storage and conveying capacity, and locating development away from functional flood plains and medium to high risk areas;
- flood reduction: assessing flood risk and, where appropriate, undertaking natural and structural flood management measures, including flood protection, restoring natural features and characteristics, enhancing flood storage capacity, avoiding the construction of new culverts and opening existing culverts where possible.

Development Management

264: It is not possible to plan for development solely according to the calculated probability of flooding. In applying the risk framework to proposed development, the following should therefore be taken into account:

- the characteristics of the site;
- the design and use of the proposed development;
- the size of the area likely to flood;
- depth of flood water, likely flow rate and path, and rate of rise and duration;
- the vulnerability and risk of wave action for coastal sites;
- committed and existing flood protection methods: extent, standard and maintenance regime;
- the effects of climate change, including an allowance for freeboard.

3.1.3 NPF3 (2014) Scotland's Third National Planning Framework

Section 4 of the NPF3 regards the coast as a natural, resilient place which “We will respect, enhance and make responsible use of our natural and cultural assets.”

4.16 Our urban infrastructure will need to change to adapt to the impacts of climate change. The coastal location of many of Scotland's cities means that land use change may be needed to achieve more sustainable and resilient patterns of development in the long-term. Particularly, water management and flooding issues will become increasingly important.

4.25 Adaptation requirements will need to be wide ranging. Catchment-scale flood risk management will become more important in response to changing weather patterns. Planning authorities have a role to play within cross-boundary and multi-sectoral working. Sustainable land management and ecosystems enhancement provide opportunities for adaptation that delivers benefits for communities, the economy and the wider environment. As they emerge, we expect flood risk management plans to become an integral part of strategic and local development planning. Changing water supplies and water quality issues, coastal erosion and increased vulnerability of the historic building stock will also need to be factored into planning decisions over the longer term. The FRMA required the setting up of LPD's consisting of SW, LA's and SEPA who ultimately produce and manage LFRMP's on a 6 year cycle. The LPD's are set up on a catchment basis and so the LA's aim to work within these LPD's on a cross boundary basis in a proactive approach to natural flood management.

3.2 Marine Scotland

3.2.1 National Marine Plan (2014)

GEN 8 Coastal process and flooding: Developments and activities in the marine environment should be resilient to coastal change and flooding, and not have unacceptable adverse impact on coastal processes or contribute to coastal flooding.

4.18: Marine planners and decision makers should be satisfied that developers and users have sufficient regard to the impacts of a changing climate, and where appropriate provide effective mitigation and adaptation to its predicted effects.

Offshore and coastal developments should be appropriately sited and designed, and use technologies and equipment appropriate for local conditions, now and in the future. The Scottish Climate Change Adaptation Programme should be complied with. Where appropriate, marine planning authorities should be satisfied that adequate risk management and contingency plans are in place, particularly in relation to potential changes in storminess.

4.19: Developers and users of the marine environment should seek to address climate change through: Adaptation – strengthening resilience in relation to greater climate variability. Examples include allowing natural coastal change where possible and new developments having regard to possible future climate conditions.

4.33: Over the coming decades, much of Scotland's coastline is expected to experience rising sea level and an increased flood risk, leading to greater rates of coastal change. Natural change may be compounded by human activities such as dredging, soil deposition, construction and coastal protection measures. While flooding and coastal change cannot be prevented entirely, it can be managed to reduce impacts on people, property, businesses and infrastructure.

4.34: Coastal infrastructure should generally be sited in areas less vulnerable to flooding and erosion, although there may be exceptions if a specific location is essential for operational reasons or it cannot be located elsewhere. Marine planners and decision makers should take account of national flood risk assessment and flood risk and hazard maps, prepared by the Scottish Environment Protection Agency (SEPA), which identify areas at risk of significant flooding (Potentially Vulnerable Areas) along with Local Flood Risk Management Plans.

4.35: The Scottish Government is working with SNH and partners to assess historic and current coastal change and map vulnerability. Marine planners and stakeholders with an interest in coastal developments should take account of these maps, when available, to ensure priorities in coastal areas are managed in an integrated way.

4.36: A precautionary and risk based approach should be taken in terms of understanding emerging evidence on coastal processes and sea level rise.

4.37: Marine planners and decision makers should also be satisfied that activities and developments will be resilient to risks of coastal change, climate change and flooding over their lifetime, and will not have an unacceptable impact on coastal change. They should seek to ensure that any geomorphological changes that an activity or development bring about in coastal processes, including sediment movement and wave patterns, are minimised and mitigated, bearing in mind the potential impact on commercial interests such as fisheries and conservation of the natural environment and key coastal heritage sites. Developments which may affect areas at high risk and increase the probability of coastal change should not be permitted unless the impacts upon the area can be managed effectively.

4.38: Wherever possible flood risk management and coastal protection solutions should work with natural processes and features, encouraging managed realignment of coastal habitats such as sand dunes, salt marshes and mudflats. The protective role of geodiversity, geomorphological and natural features such as kelp beds and biogenic reefs and sandbanks should also be considered alongside opportunities for recovery and enhancement.

4.39: As well as offering flood protection, this approach will help adaptation to climate change, improve resilience of ecosystems, deliver benefits for biodiversity and support ecosystem services more generally. If and where more traditional engineered solutions are required, the appraisal process should seek to fully understand the risks of a changing climate using the most up to date robust evidence. Modelling will be required to estimate the potential impacts of the projections for a specific flood risk protection scheme. Planners and decision makers should be satisfied that coastal processes will not be adversely affected. In terms of Regional Policy: Regional marine plans should be aligned with terrestrial development plans and reflect coastal areas likely to be suitable for development, taking into account the most recent flood risk and flood hazard maps, and forthcoming coastal erosion vulnerability mapping. Where relevant, regional marine plans should also reflect areas where managed realignment of coast may be appropriate, setting out the potential benefits such as habitat creation and new recreation opportunities.

Carbon Capture and Storage – Climate Change

10.19: Climate change and associated sea level rise is expected to increase the incidences of coastal flooding and erosion. Wind and wave conditions may also become more severe creating harsher operating conditions for offshore installations. Developers should have regard to the future changes to sea level as well as potential changes in storminess, wind and wave conditions when designing and siting new land-falling components for CCS and new offshore structures, including pipelines and rigs.

Offshore Wind and Marine Renewable Energy – Part 3 Planning Policies – Spatial Planning

11.34: A changing climate may result in changes in storminess which could create difficult operating conditions for offshore installations. Offshore renewable devices may also have the potential to change wave energy dissipation and coastal processes. Depending on the location, these effects could exacerbate the existing vulnerability of coasts to climate change by altering wave patterns and in some cases the effects could contribute to the protection of coastlines susceptible to erosion.

Offshore Wind and Marine Renewable Energy – Part 3 Planning Policies – Marine Licensing

RENEWABLES 7: Marine planners and decision makers should ensure infrastructure is fit for purpose now and in the future. Consideration should be given to the potential for climate change impacts on coasts vulnerable to erosion.

3.3 SEPA

3.3.1 SEPA Planning Authority Protocol (Policy 41)

48. Where SEPA holds or is provided with information, its advice to planning authorities on planning applications where there is a flood risk will include:

- the flood risk to the development itself;
- assessment of any mitigation measures proposed by the developer or planning authority;
- the impact upstream and downstream and to adjacent sites /existing development;

- any comments on any nearby hydraulic structures, including formal flood prevention measures;
- any comments on potential erosion related hazards;
- sustainability considerations such as climate change;
- any comments on habitats issues.

3.3.2 Flood Risk Technical Guidance for Stakeholders

4.3.4 Required elements of a FRA

...A brief assessment of the potential impact of any development on fluvial or coastal ecology, habitat or morphology and the likely longer term stability and sustainability.

4.6 Guidance for undertaking Hydrological and Hydraulic modelling - COASTAL

...Wider coastal processes should always be considered when undertaking such analyses, in particular about how coastal flooding may be exacerbated in some locations due to any of the physical factors that can occur individually or in combination with one another.

4.6.1 Physical Causes of Coastal Flooding

...It should also be noted that coastal erosion or loss of land, can also lead to and/or exacerbate coastal flooding. This can often result due to velocity and force of wave action, which can include moving debris.

4.6.3 Additional Allowances – Climate Change and Freeboard

...It is also important to make a freeboard allowance as part of any flood design exercise. Freeboard helps to account for uncertainty associated with coastal processes not explicitly accounted for by standard estimation methods such as the CFB, including:

- inherent uncertainty associated with design flood estimation
- uncertainty of wave and spray action
- uncertainty with local bathymetric processes, (e.g. reflection and shoaling)
- reduction of design level due to local changes in land, (e.g. erosion and settlement)

SEPA would recommend a minimum allowance of 600 mm be made for coastal freeboard. This may be required to be more depending on local circumstances and/ or the provision of specific guidance on this matter by local authority flood protection staff.

3.3.3 Strategic Flood Risk Assessment Guidance

5.2 Assessment of Climate Change

...SPP advises that there is a need to adapt to the short and long term impacts of climate change. The effects of climate change will increase the risk of damage to buildings and infrastructure by flood, storm, landslip and subsidence. Developments should therefore be avoided in areas with increased vulnerability to the effects of climate change,

particularly areas at significant risk from flooding, landslip and coastal erosion, and highly exposed sites at significant risk from the impacts of storms.

The CAR (Controlled Activities Regulations) Practical Guide

GBR 19: Keeping of Livestock

Significant erosion or poaching of any land that is within 5m of any river, burn, ditch, wetland, loch, transitional water or coastal water must be prevented.

GBR 20: Cultivation of Land

a) Land must not be cultivated for crops if it is: within 2m of any river, burn, ditch, wetland or loch, as measured from the top of the bank, or within 2m of any transitional water or coastal water as measured from the shoreline.

3.3.4 Further comments from SEPA

The FRM Strategies identify areas where works or studies should be undertaken to protect against coastal flooding (not specific to erosion but relevant)

For completeness, CAR (Controlled Activities Regulations) only apply to engineering works above NTL and are not used to regulate coastal or transitional engineering activities. Also, the decision was taken in Feb 2012 that CAR could no longer be used to regulate flood risk.

3.4 SNH

3.4.1 Coastal Erosion and Defence: Policy Guidance Note 00/03

Over-arching Policy

8. Most beaches in Scotland are inherently dynamic in character and are subject to periodic coastal erosion. Along with sediment transport and deposition, this erosion is necessary for the creation, conservation and integrity of many of our unique coastal habitats, landforms and landscapes. As far as is possible within the constraints of public safety, SNH advocates approaches to erosion management which retain the natural coastal habitats, processes and landscapes and which enable Scotland's coastlines to evolve naturally with minimal human intervention.

Policy Objectives

9. The following policy objectives are considered central to the achievement of this overall aim:

- proposals for all new coastal defences should be based upon a knowledge and understanding of their effects upon natural sedimentary processes and, therefore, coastal evolution elsewhere;
- all major new coastal defence schemes should form part of a strategic plan for the management of erosion and defence within the coastal cell or sub-cell concerned (such as a Shoreline Management Plan or analogous document);

- in accordance with the Environmental Impact Assessment (Scotland) Regulations 1999, Planning Authorities should require a formal Environmental Impact Assessment of any proposed coastal defence scheme likely to have a significant environmental effect upon a "sensitive location", such as a SSSI, NSA, SPA/pSPA, SAC/cSAC, even if the scheme itself lies outwith such an area;
- development of unprotected shorelines should be discouraged where such developments could not be adequately safeguarded over the lifetime of the development without the construction of coastal defences.

3.5 No Policy or Response

Adaptation Scotland	No policy
BGS	No policy
Crown Estate Scotland	No policy
RCAHMS (now part of HES)	No policy
RSPB	No response
SGEG / SGU	No policy
Transport Scotland	No response
Defence Estates / MoD	No response
Historic Environment Scotland (HES)	No response
Natural England	No response

4.0 National Policies – Partners outside Scotland

4.1 Department of Environment, Northern Ireland

David Steele, Department of the Environment, Marine Division

The strategic policy position on coastal erosion in Northern Ireland is that where essential coastal protection is the issue, NI Executive departments only have a responsibility to construct, maintain and repair coastal defences in their possession, or which are protecting assets in their possession...

For your information, DOE Marine Division's responsibility is solely as the regulatory authority for construction/development proposals below the high water mark; and would have an interest in the potential implications for coastal change in the adjacent area when determining applications.

More detail can be found in the ICZM Management Strategy document available here: http://www.doeni.gov.uk/iczm_document-2.pdf

4.2 DEFRA and Environment Agency (England)

4.2.1 National flood and coastal erosion risk management strategy for England

3.1 Strategic Aims and Objectives

The Government will work with individuals, communities and organisations to reduce the threat of flooding and coastal erosion by:

- understanding the risks of flooding and coastal erosion, working together to put in place long-term plans to manage these risks and making sure that other plans take account of them;
- avoiding inappropriate development in areas of flood and coastal erosion risk and being careful to manage land elsewhere to avoid increasing risks;
- building, maintaining and improving flood and coastal erosion management infrastructure and systems to reduce the likelihood of harm to people and damage to the economy, environment and society;
- increasing public awareness of the risk that remains and engaging with people at risk to encourage them to take action to manage the risks that they face and to make their property more resilient;

3.2 Guiding principles

A catchment and coastal “cell” based approach

The catchment or coastal cell approach is also key to managing risks at source and achieving wider benefits through more integrated water management and increasing the opportunity for developing new sources of funding as well as pooling resources and expertise. Catchment flood management plans (CFMPs) and shoreline management plans (SMPs), or equivalent, provide an important building block for this co-ordination...

Sustainability

Flood risk and coastal erosion management authorities should support communities by managing risks in ways that take account of all impacts and the whole-life costs of investment in risk management. The risk management solutions should be forward looking, taking account of potential risks that may arise in the future and being adaptable to climate change. They should also work with natural processes where possible and enhance the environment...

...Adopting more sustainable approaches to the management of flood and coastal erosion risks can greatly improve the environmental condition of rivers, wetlands, coastal areas, and the social and economic circumstances around and within settlements. The Act includes a requirement for Local Authorities, highways agencies and IDBs to contribute towards sustainable development and separate guidance is being provided by Defra alongside this strategy on how this may be achieved.

Proportionate, risk-based approaches

...Risk management measures consider both the probability over time of a flood or coastal erosion happening and the consequences that might arise if it did, for example

by assessing the average annual damages that arise from floods or coastal erosion. To do this the sources, pathways, receptors and consequences of risk need to be understood and addressed as appropriate to manage all the factors that combine to create risk...

Multiple benefits

In all instances, flood and coastal risk management should avoid damaging the environment, including the historic environment, and wherever possible work with natural processes and always seek to provide environmental benefit, as required by the Habitats, Birds and Water Framework Directives. This may include providing new habitats, which may not be directly linked to FCERM schemes, to compensate for those that are lost due to actions to protect people and property.

Beneficiaries should be encouraged to invest in risk management

...If costs are borne by national budgets alone, there would be a lack of local incentive to take sensible steps to reduce risk where possible, to avoid actions that might increase it, and to keep the costs of risk management actions proportionate. Overall, there is the opportunity for significantly more risk management activity to take place if alternative sources of funding can be secured in each area to reflect the local benefits that would be delivered. Any funding found locally can supplement the amounts available nationally and mean as many communities as possible can be protected. In his review of the summer 2007 flooding, Sir Michael Pitt suggested that better aligning beneficiaries with those that pay would create a more efficient and responsive system. To do this he recommended that *'Government should develop a scheme that allows and encourages local communities to invest in flood risk management measures'*. He also said that developers, in potentially increasing local flood risk, should *'make a full contribution towards both the costs of building and maintaining the necessary defences.'* In taking this recommendation forward, the Government has made clear that *"we cannot continue all of the work that the Environment Agency has historically done at the taxpayer's expense. Government investment in flood and coastal erosion risk management is significant, but we need to ensure that we get best value for money"*.

3.3 Achieving the objectives

3.3.1 Understanding the risks of flooding and coastal erosion, working together to put in place long-term plans to manage these risks and making sure that other plans take account of them

Understanding risks

Coastal erosion risk management authorities will work alongside the Environment Agency to develop and maintain coastal flood and erosion risk information. This will contribute to national information maintained by the Environment Agency and promote understanding of these risks enabling them to be taken into account in planning coastal protection and management activities.

Risk management in rural areas

It is recognised that rural and sparsely populated areas can face serious and significant risks from flooding and coastal erosion. Whilst the provision of major structural interventions to manage risk in rural areas may be less cost-effective than in more

populated areas, the new approach to national funding will value the protection of rural and urban areas on an equal like-for-like basis.

3.3.2 Avoiding inappropriate development in areas of flood and coastal erosion risk and being careful to manage land elsewhere to avoid increasing risks

The Environment Agency will work with local authorities and developers to avoid inappropriate building or redevelopment in areas of high flood or coastal erosion risk. Key to this is ensuring that risks are effectively identified in local strategies and that there is good co-operation between the lead local flood authority and the planning authority (where these are different). This should ensure that local development plans and other plans include appropriate policies and avoid inappropriate development in areas at risk.

3.3.3 Maintaining and improving FCERM systems to reduce the likelihood of harm to people and damage to the economy, environment and society

Achieving wider environmental objectives and other benefits

To achieve wider environmental objectives and other benefits, the measures used to manage all flood risks (including local sources of flooding) and coastal erosion will work with natural processes wherever possible and be based on partnership working with local communities.

FCERM projects should minimise damage to and, where possible improve, the local natural, cultural and built environment. Where it is not possible to avoid damage to protected features (for example designated sites, protected habitats and historic buildings) as a result of FCERM activities it may be necessary to provide compensatory measures to comply with legal requirements. Sections 38 and 39 of the Flood and Water Management Act provide powers for the Environment Agency, local authorities and IDBs to manage flooding or coastal erosion in the interests of nature conservation (including the conservation of the landscape), preservation of cultural heritage, and people's enjoyment of the environment or of cultural heritage...These provisions are important to ensure a proper balance between sustaining and enhancing the environment and reducing the risks to homes and businesses.

The role of FCERM schemes in reducing the impacts of climate change should also be considered, for example in providing new coastal and wetland habitats that may be more resilient to future change.

3.3.4 Building public awareness of the risk that remains and engaging with people at risk to encourage them to take action to manage the risks that they face

Defra, the Environment Agency and others will support community adaptation by working with them to develop understanding of how they can adapt to change, the costs and benefits of different approaches, and by providing practical approaches and examples that can be shared. In particular, these should focus on community adaptation planning and engagement and implementing innovative adaptive solutions such as land use management change.

4 Working together to protect people and property

4.1 Policy and the strategic overview of FCERM

The development of flood and coastal erosion risk management policy is led by Defra on behalf of the Government...The Environment Agency has a strategic overview of the management of all sources of flooding and coastal erosion distinct from the operational function it has in relation to managing flood risk from main rivers and the sea. This strategy seeks to provide a clear national framework for flood and coastal erosion risk management, with all sources of flooding and coastal erosion identified and managed using a risk-based approach, allowing local responsibility and decision-making where appropriate.

4.2 Planning risk management

Local authorities play a fundamental role in managing and protecting the coastline by leading on coastal erosion management activities, leading and supporting coastal groups and producing shoreline management plans through the relevant coastal group. Effective partnership working between the Environment Agency and coastal local authorities is critical to successful integrated coastal zone management.

4.3 Implementing risk management measures

Avoiding inappropriate development in areas at risk of flooding and coastal change

District councils and unitary authorities have key roles in land use planning and working with communities to ensure that development is appropriate for the area in question. This is supported by the Environment Agency as a statutory consultee for flooding and other organisations such as infrastructure and utility providers who provide advice.

Reducing the risk of coastal erosion

This work is led by coastal erosion risk management authorities and coastal local authorities and the Environment Agency work closely together to ensure that coastal flood and erosion risks are managed in a co-ordinated way. Coastal local authorities undertake works to tackle the risk of sea flooding and coastal erosion where they are best placed to do so. Coastal authorities also have powers to protect land against coastal erosion and to control third party activities on the coast. This includes the construction of private defences or the removal of beach material.

5 Funding for flood and coastal erosion risk management

The benefits of FCERM typically outweigh costs many times over, providing significant gains to land and property owners and others by avoiding future damage to property, safeguarding insurance terms, and preventing the serious trauma and health impacts that flooding and coastal erosion cause.

5.1 Approach to targeting Government resources

Flooding and coastal erosion cannot be entirely prevented and the relevant legislation is largely permissive. This means that there is no general right to be protected from flooding and coastal erosion, and no right to be protected to any particular standard where risk management action is taken. Instead, Government promotes nationally consistent approaches to assessing and managing flood and coastal erosion risk.

Government, through national taxation, is also the primary funder of risk management activity, with the majority of funds within the system provided by Defra to the Environment Agency as Flood Defence Grant-in-Aid.

5.2 Capital investment in new and improved assets and systems

Principles underpinning the national capital allocation system

3 - All flood and coastal erosion risk management projects should be treated equally based on the benefits being delivered and damages avoided, regardless of the type of risk or the risk management authority involved. So that all sources of flood risk, and coastal erosion, are valued fairly and given common access to funding from central Government. Funding levels will be based on a project's relative benefits, allowing trade-offs to be made between tackling different sources of risk, and between community-level and property-level approaches.

4 - The general taxpayer should not pay to protect new development in areas at risk of flooding or coastal change, now or in the future. New properties completed, or existing buildings converted into housing, after 1 January 2012 will not have an influence on the allocation of national funding to projects. As a result, local responsibilities are reinforced for decisions taken over the nature and location of development. The Pitt Review said developers should "make a full contribution towards the costs both of building and maintaining any necessary defences".

6 - All investment should be made within a nationally consistent framework, to take account of policies and findings within CFMPs and SMPs, with options adequately appraised in line with HM Treasury guidance. So that approaches being taken are technically sound and sustainable, do not have unforeseen adverse consequences on other areas, and work with natural processes where possible.

5.3 Maintenance of existing defence asset systems

Flood risk and coastal erosion management assets such as embankments, culverts and pumps work with others as part of a system, together providing protection to a defined 'benefit area'. Failure of any one single asset could put the whole system at risk. The Environment Agency, therefore, uses a system-wide approach to manage the main river and tidal flooding assets and has, in recent years, been investing in developing System Asset Management Plans (SAMPs) for every one of the 2,700 flood risk management systems in England. This has involved mapping each asset system, cataloguing all assets performing an FCERM function, and appraising the future costs to maintain and replace Environment Agency assets and the benefits of maintaining the system as a whole.

6 Reporting on the strategy and supporting information

6.1 Reporting on and reviewing the national strategy

Following commencement of Section 18 of the Flood and Water Management Act the Environment Agency will be required to report to the Minister about flood and coastal erosion risk management. In particular, the reports must include information about the application of the national flood and coastal erosion risk management strategy for England. This must include information on all sources of flood risk and coastal erosion produced by all the accountable FCERM authorities.

High level national FCERM reporting will be carried out annually and build on existing practices. More detailed reports will be provided to coincide with the six-year cycle of the Flood Risk Regulations, with further interim reports being produced as directed by Government to support policy decisions such as future Government spending reviews.

From April 2011, lead local flood authorities will have a duty under the Flood and Water Management Act to investigate flood events.

5.0 Regional policies – Local Authorities

5.1 Aberdeenshire

5.1.1 Aberdeenshire Council: Transportation and Roads Coast Protection Policy (1997)

A Statement of Policy for the Maintenance and Provision of Coast Protection Works

1. Maintenance of Existing Coast Protection Works

1.1 Works in the Ownership of Aberdeenshire Council

Aberdeenshire Council are responsible for the maintenance of existing coast protection works constructed by or for the council or the previous coast protection authority as formal coast protection schemes. They will be maintained in good condition.

1.2 Works in Private ownership

1.2.1 If maintenance or repair of existing coast protection works constructed by or for private landowners becomes necessary and comes to the attention of Aberdeenshire Council, the council will contact the private owner and inform him of his obligation to carry out maintenance or repair.

1.2.2 If ownership of existing coast protection works cannot be determined. Aberdeenshire Council will carry out any maintenance or repair which may become necessary provided that:

- (1) property or valuable land-is in danger;
- (2) cost benefit analysis shows a positive return.

An appropriate contribution will be sought from the beneficiaries of any such work.

2. Provision of New Coast Protection Works

Aberdeenshire Council will promote new coast protection works when necessary in accordance with the following criteria:

2.1 Established Communities

2.1.1 The protection of established communities against erosion shall be treated as first priority. Protection against flooding, due to overtopping shall be treated as second priority. All proposed schemes must show a positive return on cost benefit analysis. Contributions will generally not be sought from property owners.

2.1.2 If, however, notification of potential erosion or flooding problems had previously been given during the planning process, the council will not take the lead in promoting new coast protection

works and will only contribute to the necessary works. Such contribution may take the form of design costs. Reasonable technical advice will be given free of charge.

2.2 Individual or Small Groups of Houses

2.2.1 Provided that at-least one house is permanently occupied and does not constitute a second home or a business, individual houses and small groups of houses will be treated as in paragraph 2.1 above.

2.3 Agricultural Land. Estate Land. Commercial Properties and Caravan Parks

2.3.1 New coast protection works for agricultural land, estate land, commercial properties or caravan parks will not normally be promoted by Aberdeenshire Council. Contributions to such works will not normally be considered. Reasonable technical advice will however be given free of charge.

2.3.2 Formal design work including the processing of statutory procedures in connection with such works will be undertaken on request at a suitable fee to be agreed in advance.

2.4 Sports Facilities

2.4.1 New coast protection works for sports facilities will be promoted by Aberdeenshire Council only in exceptional circumstances. Should the council decide to promote such works, a contribution to the cost of the works appropriate to the number of users of the facility will be sought.

2.5 Publicly Maintained Roads

The protection of all adopted roads against erosion shall be treated as a first priority. Protection against flooding due to overtopping shall be treated as second priority. Proposed schemes shall be prioritised with respect to the classification of the road. All proposed schemes must show a positive return on cost benefit analysis.

2.6 Privately Maintained Roads

2.6.1 Coast protection works for privately maintained roads will not normally be promoted by Aberdeenshire Council. Contributions to such works will not normally be considered. Reasonable technical advice will however be given free of charge.

2.6.2 Formal design work including the processing of statutory procedures in connection with such works will be undertaken on request at a suitable fee to be agreed in advance.

5.2 Angus Council

5.2.1 Angus Shoreline Management Plan

SMP is available here: <http://archive.angus.gov.uk/ac/documents/roads/SMP/>

5.3 Clackmannanshire Council

5.3.1 Clackmannanshire Local Plan

Water Resources

1.17: Parts of Clackmannanshire are prone to flooding, particularly on land around the main rivers: the Devon, the Black Devon, the Forth and their tributaries. Current predictions of climate change linked to global warming suggest that flooding risk will

increase in the future. SPP 7 (Planning and Flooding) advises Planning Authorities to adopt the precautionary principle when assessing proposals and this is reinforced by Structure Plan Policy ENV 9 ([Water Resources Management](#)). Therefore, in most cases where a significant risk of flooding exists new sites will not be allocated and development will not be permitted unless it can be demonstrated that no suitable alternative location exists, and a flood risk assessment indicates that the risk can be satisfactorily mitigated by works which will not lead to increased flood risk elsewhere, or unacceptable habitat loss. SPP 7 clearly defines the type of locations that may be at risk from flooding, and this will be used by the Council to evaluate whether further information about flood risk is required. This may involve the undertaking of Flood Risk Assessments by developers as part of applications for planning consent. A Flood Appraisal Group has been established to manage and minimise the threat of flooding in Clackmannanshire. This Group will establish Flood Risk Assessment standards for developers, raise awareness locally of the implications of the forthcoming [EU Water Framework Directive](#), advise on best practice and identify specific projects to alleviate flood risk.

1.18: The Council supports the use of Sustainable Urban Drainage Systems (SUDS), particularly where sites are near watercourses. SUDS solutions improve the quality of water run-off, as well as reducing the risk of flooding. They also provide very good opportunities for habitat creation. The Council's preferred approach to SUDS will be to encourage schemes that enable ecological enhancement through new wetland creation. More detailed information about the Council's policy on SUDS can be found in SAN 9 ([Planning and Flooding](#)). Online flooding advice for developers and others is available at <http://www.gov.scot/Resource/0047/00479774.pdf>.

1.19: Many watercourses in Clackmannanshire have become degraded by development, particularly where they have been culverted. Culverting and/or canalisation of a watercourse remove almost all its ecological value and is not generally supported. This is consistent with the Scottish Environment Protection Agency's policy on culverting of watercourses. Much of the value of Clackmannanshire's water courses lie in their riverside vegetation and, accordingly, the Council will seek to protect these areas wherever possible by encouraging buffer zones between the water course and the development.

Policy EN4 - Water Resources

1. All planning applications will be assessed for flood risk. Where sites are potentially at risk, detailed flood risk assessments will be required. Generally, where a site is determined as being at flood risk, permission for new development will not be granted. Only in exceptional circumstances, where it is proven that there is no viable alternative location and where environmentally suitable mitigation measures can be implemented, will a policy of managing the threat of flooding be adopted.

2. Sustainable Urban Drainage Systems (SUDS) solutions to surface water management will be required, as described in [SAN 9 \(Planning and Flooding\)](#). The preferred approach will be solutions that enable wetland habitat creation or enhancement. In all cases, management of surface water or the implementation of flood prevention measures must take full cognisance of the ecology of the site. Agreement on the long-term maintenance of SUDS will be required before any consent is granted.

3. There will be a presumption against canalisation and/or culverting of any watercourse as part of development. Further, where development is proposed adjacent to a watercourse, management and ecological enhancement of the areas adjacent to the water course will be expected and a buffer zone of at least 10m will where possible be required between the development site and the watercourse's riverside vegetation. Proposals that incorporate water courses within garden ground will not be supported.

The Coast

1.20: The Forth estuary is classified as a coastal area under [NPPG 13 \(Coastal Planning\)](#). This area is important for nature conservation. Most of it is designated as a Special Protection Area (SPA), and as a Ramsar site, while much of it has also been designated as a nationally important Site of Special Scientific Interest.

1.21: "The Forth Integrated Management Strategy" was finalised by the [Forth Estuary Forum](#) in 1999. This strategy promotes the wise and sustainable use of the River Forth by seeking to encourage bodies to work together and consider the management of the Forth as a whole and to bring users and regulators together to discuss and resolve issues at a local level. While Clackmannanshire accounts for only a small part of the Forth estuary, the Council nevertheless has key role to play in helping implement the strategy given the ecological and landscape value of the area.

1.22: The ecology of the coast and rivers is sensitive and, accordingly, the Council will where appropriate seek to protect these areas from development which may have an adverse impact. To achieve this, the Proposals Maps identify the "developed" and "undeveloped" areas of coast as defined in [NPPG 13](#).

1.23: The classification of areas of the coast as developed does not bring a presumption in favour of development. Development not specifically requiring a coastal location will not normally be permitted on the coast. Development proposals that require a coastal location will be directed to those areas that are classified as developed. Preference will be given to the reuse of available and suitable brownfield land in these areas.

Policy EN5 - The Coast

1. The undeveloped coast will be protected from further development except where it can be proven that there are no viable alternative sites. Proposals for further development on the developed coast should ensure the protection and enhancement of the coastal resource, its amenity and habitat value. Development in any location that may damage the ecology of the coast will not normally be permitted. When considering proposals for development on the coast, the Council will be guided by the need to protect the Firth of Forth Site of Special Scientific Interest, the Special Protection Area and Ramsar site and by the policies and actions relating to the Clackmannanshire LBAP.

2. The Council will support the provisions of the Forth Integrated Management Strategy and will take account of it in development control decisions.

5.3.2 Clackmannanshire Proposed Local Development Plan

Policy EA9 - Managing Flood Risk

This policy aims to manage the risk of flooding from all sources: river, coastal, surface water, sewers, groundwater, reservoirs and other infrastructure. There will be a general presumption against proposals for built development or land raising on a functional flood plain and in areas where there is a significant flooding probability from any source ,or where the proposal would increase the probability of flooding elsewhere Applications for development on land which the Council considers to be at risk of flooding, or which the Council considers are likely to increase the risk of flooding elsewhere, must be accompanied by a Flood Risk Assessment carried out in accordance with the principles outlined in the Water SG. All flood risk assessments will be considered in relation to the risk framework detailed in the SPP. Permission will not normally be given for development on greenfield sites and undeveloped/sparsely developed localities which are at risk of flooding, or which would increase the risk of flooding to either existing development or to LDP sites. However, in exceptional circumstances, defined in the Water SG, consent may be granted with conditions covering public safety and resilience. Development proposals on brownfield and previously developed sites that are at risk of flooding will be supported where the applicant demonstrates to the satisfaction of the Council that the proposal meets all the following criteria:

- Flood mitigation measures can be implemented, for example raised floor levels, or land raising supported by compensatory storage.
- A policy of managing the threat of flooding can be adopted.
- These measures would not cause a detrimental impact on the environment including no adverse effects on the integrity of the Firth of Forth SPA or River Teith SAC either alone or in combination with other projects or plans.
- These measures would not increase the probability of flooding elsewhere or have a significant probability of being affected by flooding.
- Any land to be used for compensatory storage is secured for this purpose in perpetuity.
- The flood risk vulnerability of the land use is appropriate for the location and degree of flood risk to the site. For example, in flood risk areas less vulnerable land uses such as commercial or industrial should be favoured over residential uses.

Prior to the development and approval of the Forth District Flood Risk Management Plan, proposals will be supported where the applicant demonstrates to the satisfaction of the Council that they meet both the following criteria:

- Features that help to attenuate or convey flood water such as flood plains, wetlands, natural detention basins and other green spaces are safeguarded.
- Where appropriate, developments include features that contribute to sustainable flood management.

Sustainable flood management measures which are part of any approved national or local Flood Risk Management Plan or measures, including managed realignment on the

coast, will be supported, providing these will have no adverse effects on the integrity of the Firth of Forth SPA either alone or in combination with other projects or plans.

The Council will ensure that areas of land required to provide flood alleviation are protected from other development pressures.

The Water SG sets out the Council's approach to flood risk; advice on flood risk assessment and drainage assessment; and guidance on related drainage and water quality issues.

Environmental Implications

This policy is likely to significantly improve Clackmannanshire's resilience to climate change, and reduce overall flood risk in a sustainable way. Sustainable flood management measures are likely to enhance the status of the water environment, including reducing pollution; they also have the potential to contribute to the conservation of biodiversity through habitat enhancement. Reducing the risk of flooding is likely to lead to improved community safety, and is likely to have health benefits.

Policy EA10 - Coastal Planning

This policy aims to promote an integrated approach to development in the coastal zone, supporting the provisions of the Forth Area Management Plan, and ensuring protection of designated habitat sites and the landscape, open space and cultural heritage of the coastal margin. Development proposals will normally be supported within the Alloa settlement boundary, provided they do not negatively impact on the protection of the landscape, amenity and habitat value of the coastal zone, and do not have an adverse effect on the integrity of the Firth of Forth SPA and associated Ramsar site or River Teith SAC either alone or in combination with other projects and plans. Where proposals may be subject to significant flood risk, a Flood Risk Assessment may be required.

There will be a presumption against development elsewhere in the coastal zone. However, proposals for the following types of development will normally be supported:

- managed coastal realignment projects which are compatible with the provisions of the flood risk management plans for the Upper Forth and with the Clackmannanshire Biodiversity Action Plan
- recreational access provision, where this is compatible with amenity and nature conservation policies and will not have an adverse effect on the integrity of the Firth of Forth SPA either alone or in combination with other projects and plans.

Environmental Implications

This policy is likely to contribute to sustainable flood management and to enhancement of water status. It is likely to have significant beneficial impacts for biodiversity, including habitat connectivity, and is likely to protect and enhance the landscape and cultural heritage of the coastal margin. This policy is likely to contribute to the objectives of the Central Scotland Green Network, and is likely to help to reduce the environmental impact of travel

5.4 Comhairle nan Eilean Siar

5.4.1 Coastal Defences and Flooding Issues, roles and responsibilities Members' Briefing Paper February 2005

Legal Position

4.8 Where funding permits and investment can be justified, the provision and maintenance of coastal defences concentrate on the protection of Comhairle owned assets and infrastructure such as:

- roads and causeways
- piers, harbours and breakwaters
- offices, schools and social care premises
- Comhairle-owned cemeteries

4.10 It is important to emphasise that the primary responsibility for safeguarding land or property against natural hazards such as coastal erosion or flooding remains with the owner of that land or property.

Planning and Development Issues

5.9 RM7 Coastal Erosion

The Comhairle will adopt a policy of "managed realignment" in response to rising sea levels and coastal erosion.

Exceptions may be considered when one of the following are threatened:

- (i) important habitats such as the machair; or
- (ii) scheduled monuments or listed buildings; or
- (iii) major infrastructure and utilities; or
- (iv) occupied buildings

Where an exception has been identified the Comhairle will work with other agencies and landowners to put in place appropriate defence measures, subject to the availability of resources and the environmental impact.

The Local Plan will identify specific areas at risk from erosion requiring special consideration and will develop policy responses in conjunction with the Coastal Zone Management Plan. Development proposals on areas liable to erosion are only likely to be granted when the applicant can demonstrate that the development:

- (i) will have exceeded its useful life expectancy before erosion is likely to occur; or
- (ii) is of a temporary nature; or
- (iii) will not give rise to, or require, defence measures

Conclusions

7.5 ...Monitoring of the coastal zone now, and over the coming years, will provide an invaluable stock of better quality knowledge for coming generations of planners and engineers likely faced with the same uncertainties about their future.

5.5 Dumfries & Galloway Council

5.5.1 Dumfries & Galloway Council Shoreline Management Plan

SMP is available here: <http://www.dumgal.gov.uk/index.aspx?articleid=4694>

5.6 Dundee City Council

No policy but TAYplan, a strategic development plan has been completed and the Proposed Plan (2015) submitted to Scottish Ministers on 7 June 2016.

http://www.tayplan-sdpa.gov.uk/strategic_development_plan

5.7 East Lothian Council

5.7.1 East Lothian Shoreline Management

SMP not available online

5.8 Fife

5.8.1 Fife Shoreline Management Plan

SMP is available here: www.fifedirect.org/shoreline

Please note there is also a Mid Fife Local Plan (see following link) - <http://www.fifedirect.org.uk/topics/index.cfm?fuseaction=page.display&p2sid=C1B1AE31-1CC4-E06A-52867243662458B4&themeid=2B482E89-1CC4-E06A-52FBA69F838F4D24>

And these Local Plans will be superseded by the Fife Local Development Plan, once adopted in 2016, the current proposed coastal policies within that Plan are Policy 12 available at the following link

<http://www.fifedirect.org.uk/publications/index.cfm?fuseaction=publication.pop&pubid=42CF988F-D6BA-5DDA-965D6400FC03E957>

5.8.2 Dunfermline & West Fife Local Plan

Policy 14: Flooding and Water Quality

In areas at known risk from tidal flooding and coastal erosion, development will not be supported unless it is related to coastal defence works on functional floodplains, built development will only be supported in exceptional circumstances; such exceptional development should not adversely affect the ability of the floodplain to store and

convey water and should not either be at risk of flooding or increase the risk of flooding elsewhere

Policy E27: The Coast

Development on the undeveloped coast will not be supported unless it can be demonstrated that

- (a) there is a proven need for a coastal location
- (b) the proposal avoids the use of greenfield sites and can reuse of vacant land...
- (d) the proposal does not contribute to or is at risk of coastal erosion;
- (e) the proposal is not subject to nor will it contribute to flood risk;
- (f) the proposal safeguards cultural and natural heritage resources...

Development which is proven to require a coastal location or which contributes to the economic regeneration of coastal settlements should be located on the developed coast in the first instance.

5.8.3 St Andrews and East Fife Local Plan

Policy E20 Water Environment

Development will not be permitted where it would have an adverse effect, either directly or indirectly, on the ecological status of water bodies or the quality of groundwater.

Reason

All water bodies, including rivers, reservoirs and lochs, coastal and transitional waters, smaller burns and ponds, wetlands and marshes, and groundwater are a focus for wildlife and native woodland. They are usually a scenic asset, and are often a recreational resource. The Fife Local Biodiversity Action Plan, together with the policies and proposals in the Local Plan, provides the basis upon which the Council will seek to protect these natural assets. Development that may result in pollution, erosion, channelling, major culverting, the loss of habitat, or any other detriment to the amenity of the watercourse will not be supported.

Policy E27: The Coast

Development on the undeveloped coast will not be supported unless it can be demonstrated that

- (a) there is a proven need for a coastal location
- (b) the proposal avoids the use of greenfield sites and can reuse of vacant land...
- (d) the proposal does not contribute to or is at risk of coastal erosion;
- (e) the proposal is not subject to nor will it contribute to flood risk;

(f) the proposal safeguards cultural and natural heritage resources...

Development which is proven to require a coastal location or which contributes to the economic regeneration of coastal settlements should be located on the developed coast in the first instance.

5.9 Highland Council

Policy 49 Coastal Development

20.20.1 Development proposals for the coast or for installations in nearshore waters should, in both their location and their design, show consideration to the range of existing interests ensuring best use of resources taking account of existing and planned marine activities and development. Proposals should not have an unacceptable impact on the natural, built or cultural heritage and amenity value of the area. The Council will promote the landward side of the road for development where proposals on the coastal side would otherwise interrupt scenic views over open water: unless a coastal position is necessary, or if the effect would be a conflict with the existing settlement pattern. Where development on the coast is justified, opportunities for the development or reuse of previously used land and buildings should be considered in the first instance. The site should not be at risk from coastal erosion or flooding or cause an unacceptable impact as a result of natural coastal processes which it triggers or accentuates. In relation to medium or high flood risk areas: water-based uses and sub-sea cables may be acceptable; and essential infrastructure, which cannot be located elsewhere, may be acceptable, both subject to mitigation, as appropriate. Erosion data should be consulted when determining whether natural coastal processes have potential to be an issue. Other important factors will be potential landscape impact, and effect on the setting of coastal communities. Consideration will be given to the potential for any proposal to result in coalescence.

Proposals will be assessed against the requirements of the Highland Coastal Development Strategy: Supplementary Guidance. The principal aims of the strategy are to:

- guide the sustainable development and use of Highland's coastal zone whilst safeguarding its natural and cultural heritage assets;
- provide a strategic planning framework for the coast and nearshore area of Highland which takes account of national policy guidance and the need for more detailed plan coverage in appropriate areas;
- complement the statutory terrestrial elements of the Highland-wide Local Development Plan, Scottish Planning Policy and the implementation of the Marine (Scotland) Act 2010. This recognises that the use of nearshore waters (particularly the more sheltered water) is relevant and often closely related to the use of the land adjacent;
- provide strategic vision and guidance for development on and around the Highland coast, i.e. development in the planning sense;
- provide a classification of the Highland coast relevant to development in the nearshore area.

5.10 N. Ayrshire

5.10.1 North Ayrshire Local Development Plan

Policy ENV 8: Coastal Zone

To protect the environmental and recreational value of the coastal zone, as identified on the LDP Map:

1. Within the developed coast: Development which requires a coastal location and which would enhance the developed coast shall accord with the LDP. The Council will give priority to the reuse of redundant land and buildings which will restore or enhance degraded coastal environments. The Council will avoid approving development which would result in coalescence of development along the coast.
2. Within the undeveloped coast: Development shall not accord with the LDP unless it is within a settlement, or is associated with an existing development, or there are specific operational needs for the proposal to be located on the site, or there are no feasible alternative sites available and the social and economic benefits outweigh the environmental loss.
3. Within the isolated coast: Development shall not accord with the LDP.

Note: Proposals for development will be required to take cognisance of the Council's Coastal Design Guidance and demonstrate that they require a coastal location and on the undeveloped and isolated coasts are likely to require an environmental statement

5.11 Orkney Islands Council

5.11.1 The Orkney Local Development Plan

Policy D1 Flooding and Coastal Erosion

Development on land identified on the Proposals Map as being at risk from either coastal erosion or from flooding, or where other available information suggests there may be a risk, will not be permitted. The only exceptions are where;

1. A site specific flood risk assessment and/ or geomorphology assessment, which includes an allowance for freeboard, is provided to demonstrate that it is not at medium to high risk of flooding.
2. The development is for flood or erosion prevention measures and it has been clearly demonstrated that it will not increase the risk of flooding or erosion elsewhere.
3. The development is for infrastructure that is essential for operational reasons, including for a water-based business or use, and an alternative lower risk, location is not achievable.
4. It is within a built-up area and complies with the flood prevention or management measures detailed in the settlement statements.

In exceptional cases where development is to be permitted on land at risk from flooding, then it must be designed to minimise risk. In addition, development in an Area of potential natural flood risk identified in the Proposals Map will not be permitted unless a site-specific flood risk assessment is provided to demonstrate that the site is not at a medium and greater risk of flooding, that the development would not increase the probability of flooding elsewhere, and that the development would not conflict with any flood. Further guidance is provided in the Supplementary Guidance Flooding and Coastal Erosion.

To support this policy, the Proposals Maps identify:

- Areas subject to coastal erosion
- Area of potential natural flood risk
- Coastal flooding zone (1:200 flood event)
- Fluvial flooding zone (1:200 flood event)

5.12 Shetland Islands Council

5.12.1 Shetland Marine Spatial Plan

The MSP is available here:

<http://www.shetland.gov.uk/planning/LocalDevelopmentPlan.asp>

Policy MSP CD1: Coastal Defence Construction

The installation of new flood defences and coastal protection works will be considered if coastal erosion or flooding threatens existing public infrastructure and important built development and where there is a significant safety risk. Where this has been demonstrated, the planning authority and coast protection authority will ensure the construction of flooding or coastal defence developments have:

- a) complied with all other policies in Policy Framework Section 5(a) and 5(b);
- b) provided detail of relocation options;
- c) detailed the design and assessed the risks and impacts, ensuring the retention or enhancement of the ecological characteristics, landscape character and popular coastal views; and
- d) can demonstrate the wider implications of exacerbating flooding or coastal erosion have been considered and that potential impacts have been mitigated so far as possible.

Where coastal defence is deemed necessary, there should be an overall presumption in favour of soft rather than hard defences. The use of managed realignment of coastal defences where appropriate will be promoted.

5.13 No policy or response

Aberdeen Council	No response
Argyll and Bute Council	No response
Edinburgh City Council	No response
Falkirk Council	No response
Glasgow City Council	No response
Moray Council	No response
Perth and Kinross Council	No response
Renfrewshire Council	No response
South Ayrshire	No policy
West Lothian Council	No policy
Scottish Borders Council	No response
West Dunbartonshire Council	No response
Inverclyde Council	No response

6.0 Regional policies – Non-Statutory Plans

6.1 Shetland Marine Spatial Plan

The MSP is available here:

<http://www.shetland.gov.uk/planning/LocalDevelopmentPlan.asp>

6.2 Pentland Firth & Orkney Waters Marine Spatial Plan

Current progress on the Pentland Firth & Orkney Waters MSP is available here:

<http://www.gov.scot/Topics/marine/seamanagement/regional/activity/pentlandorkney>

6.3 Firth of Clyde Marine Spatial Plan

The Firth of Clyde MSP is available here:

<http://www.clydemarineplan.scot/marine-planning/clyde-regional-marine-plan/>

7.0 Regional policies – Coastal Fora

7.1 Clyde Marine Planning Partnership

The Firth of Clyde MSP is available here:

<http://www.clydeforum.com/marine-planning>

7.2 Tay Estuary Forum

TEF Management Plan (2009-2014)

ENV e: "Participate in developing flood defence strategy that allows a balance between allowing natural processes to operate in the area and coastal protection."

ENV f: "Engage with shoreline management plan development process and regularly attend coastal protection group meetings"

ENV g: "Increase public awareness of dynamic coastal systems"

7.3 Moray Firth Partnership

No policies on coastal erosion, but policies in the National Marine Plan inform activities.

7.4 No policy or response

Forth Estuary Forum	No response
Moray Firth Partnership	No Policy
Solway Firth Partnership	No policy
Scottish Coastal Forum	No response

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8.0 Appendix

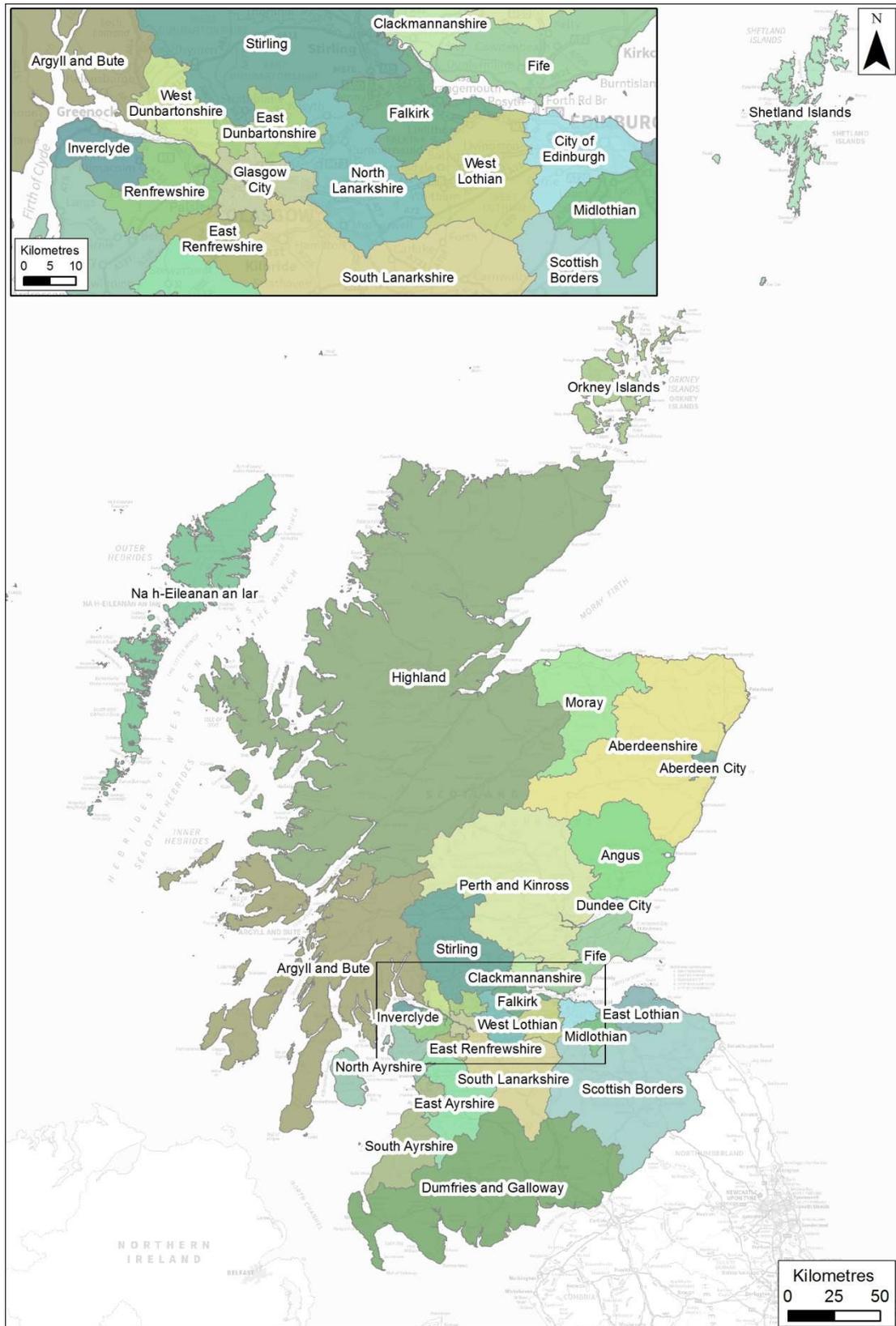


Figure 8.1: Location and boundaries of the local authorities.



Scotland's centre of expertise for waters

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