

Public Document Pack

Argyll and Bute Council
Comhairle Earra Ghaidheal agus Bhoid

Customer Services
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2 April 2015

SUPPLEMENTARY PACK

BUTE AND COWAL AREA COMMITTEE – 7 APRIL 2015 AT 9.30AM IN EAGLESHAM HOUSE

I enclose herewith item 12 (**West Bay Dunoon**) 2 additional reports in relation to this item which were noted on the report as appendix 1.

Douglas Hendry
Executive Director - Customer Services

BUSINESS

12. WEST BAY DUNOON

Report by Amenity Performance Manager (Pages 1 - 40)

BUTE & COWAL AREA COMMITTEE

Councillor Gordon Blair	Councillor Michael Breslin
Councillor Robert Macintyre (Chair)	Councillor Bruce Marshall
Councillor Alex McNaughton (Vice-Chair)	
Councillor James McQueen	Councillor Len Scoullar
Councillor Isobel Strong	Councillor Dick Walsh

Contact: Andrea Waters, Senior Area Committee Assistant, [Tel:01369708662](tel:01369708662)

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Sustainable Flood Risk Management

Kat Ball (Senior Policy Officer)



© PA

Flood Risk Management Act

Overview

- Responsibilities
 - Flood Risk Management Act
 - Coast Protection Act
- Coastal Processes, examples at West Bay
- Importance vegetated shingle habitat

Flood Risk Management (Scotland) Act 2009

- Promote sustainable flood risk management
- Manage flood risk in a sustainable way
- Contribute to sustainable development

Sustainable Management

Avoid increasing
flood risk

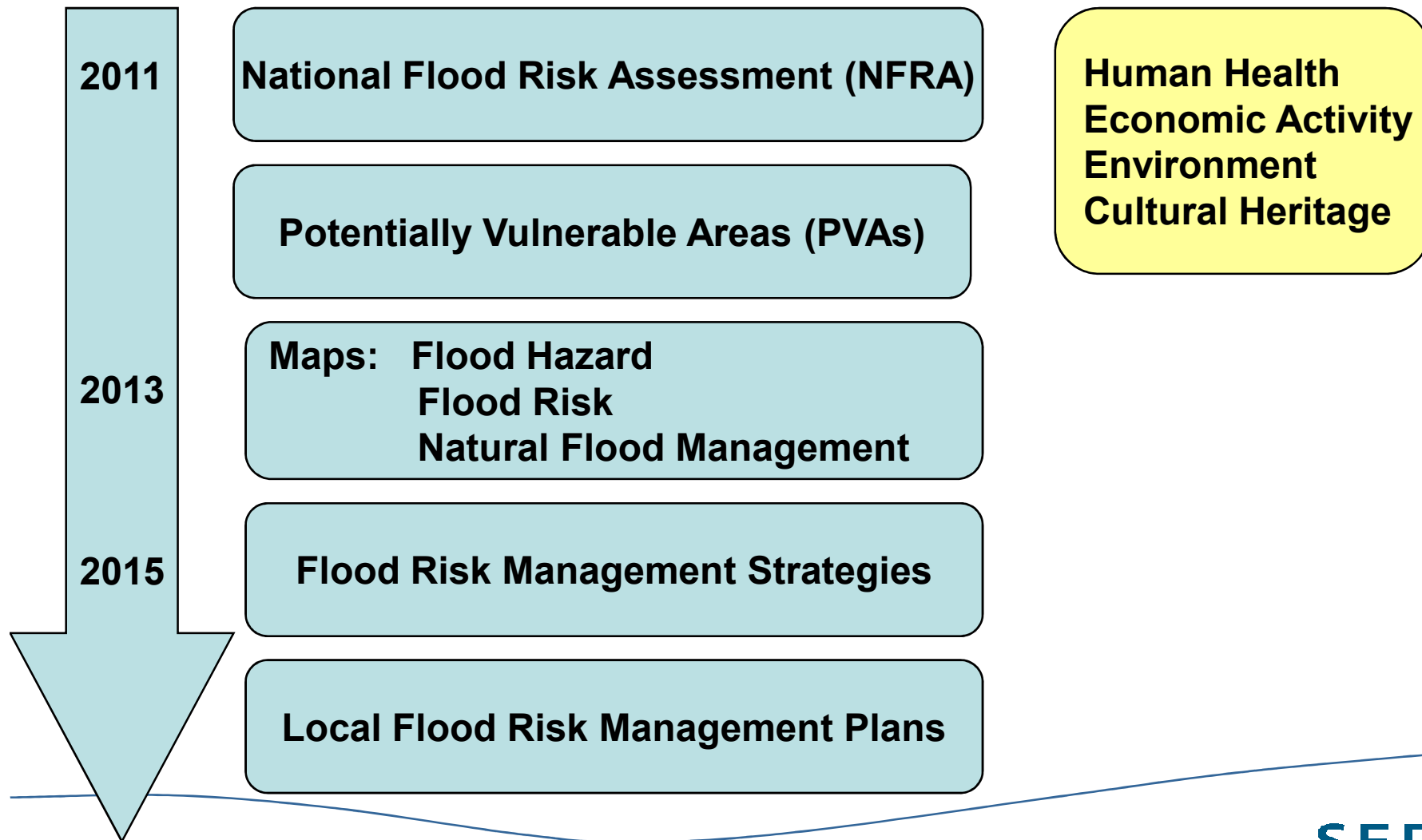
Prepare to reduce
impacts of flooding

Sustainable Flood
Risk Management

Protect to reduce
likelihood of flooding

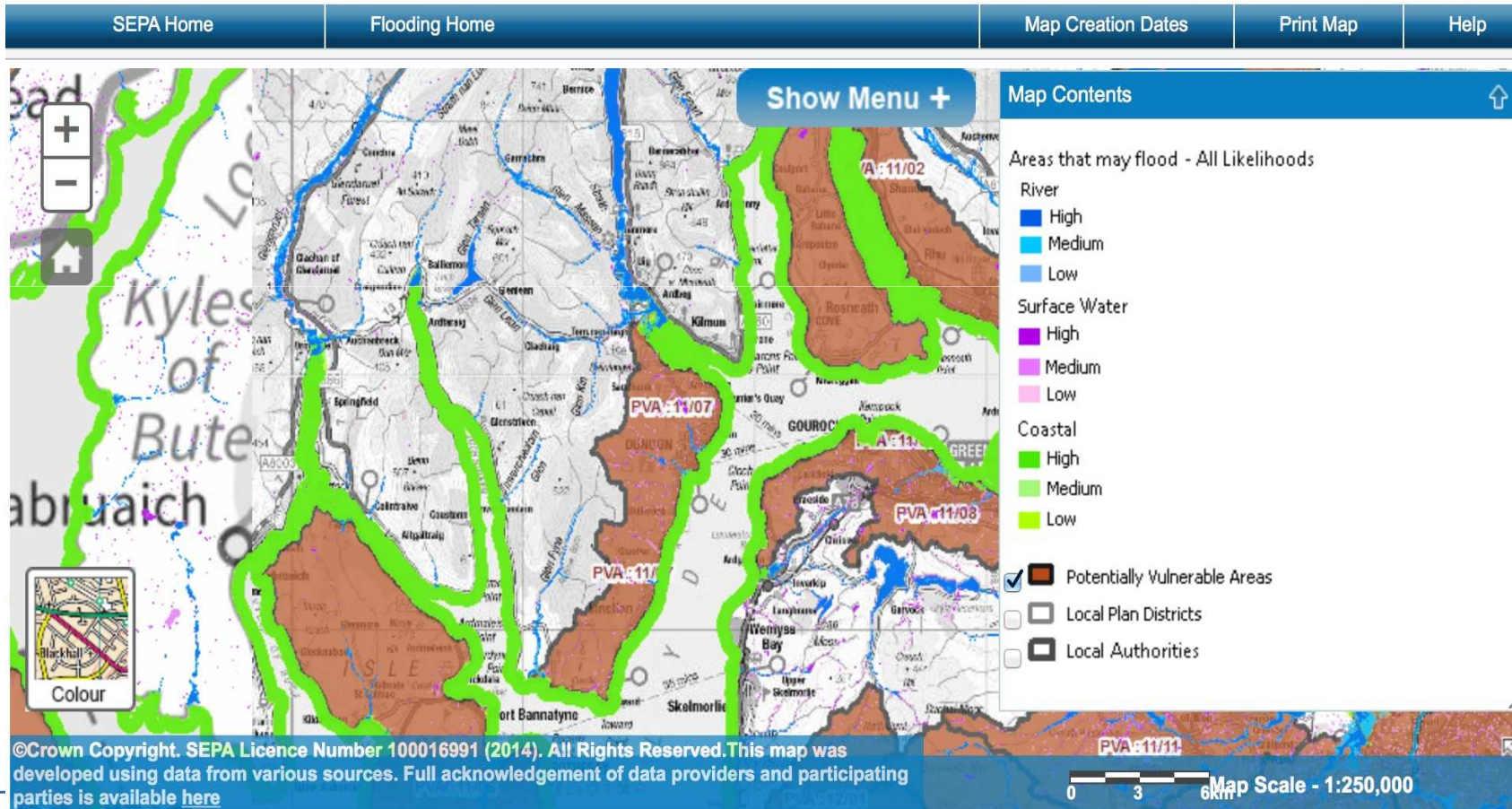
Accept all or part of
flood risk

FRM Planning Process

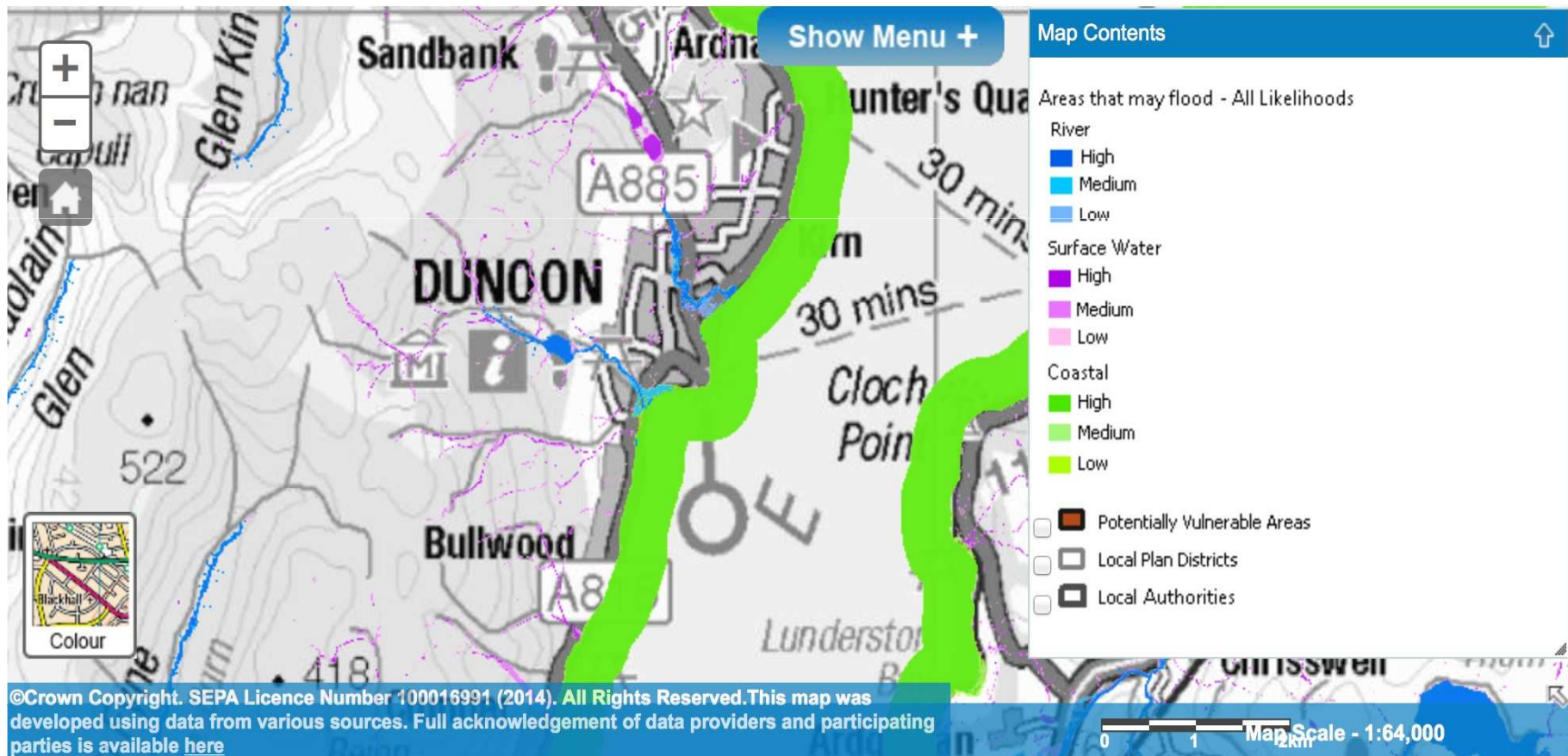


Flood Risk Management Act

Dunoon PVA 11/07



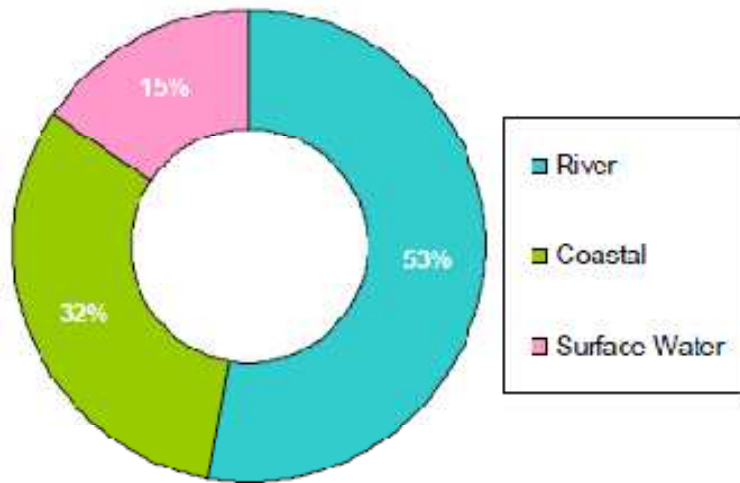
SEPA Flood Hazard Maps



©Crown Copyright. SEPA Licence Number 100016991 (2014). All Rights Reserved. This map was developed using data from various sources. Full acknowledgement of data providers and participating parties is available [here](#)

Flood Risk Management Act

PVA 11/07



Coastal Flood Risk

High Likelihood (1 in 10 yr): 0 homes, >10 businesses

Medium Likelihood (1 in 200yr): >20 homes, ~ 20 businesses

Low Likelihood (1 in 1000yr): ~ 40 homes, ~ 40 businesses

Flood Risk Management Act



Summary flooding impacts (all sources) PVA 11/07

	1 in 10 year	In 200 year	1 in 1000 year
	High likelihood	Medium likelihood	Low likelihood
No. of residential properties	40	140	240
No. of people	90	300	530
No. of non-residential properties	40	80	140
Total community facilities	3	3	3
Community facilities - education	1	1	1
Community facilities - emergency	1	1	1
Community facilities - care	1	1	1
Total utilities	4	11	16
Utilities - energy	4	11	16
Transport links - road (km)	4.0	5.9	7.3
Environmental designated areas (km ²)	0	0	0
No. of cultural heritage sites	3	4	5
Agricultural area (km ²)	0.3	0.5	0.7

Coastal Area 11-01

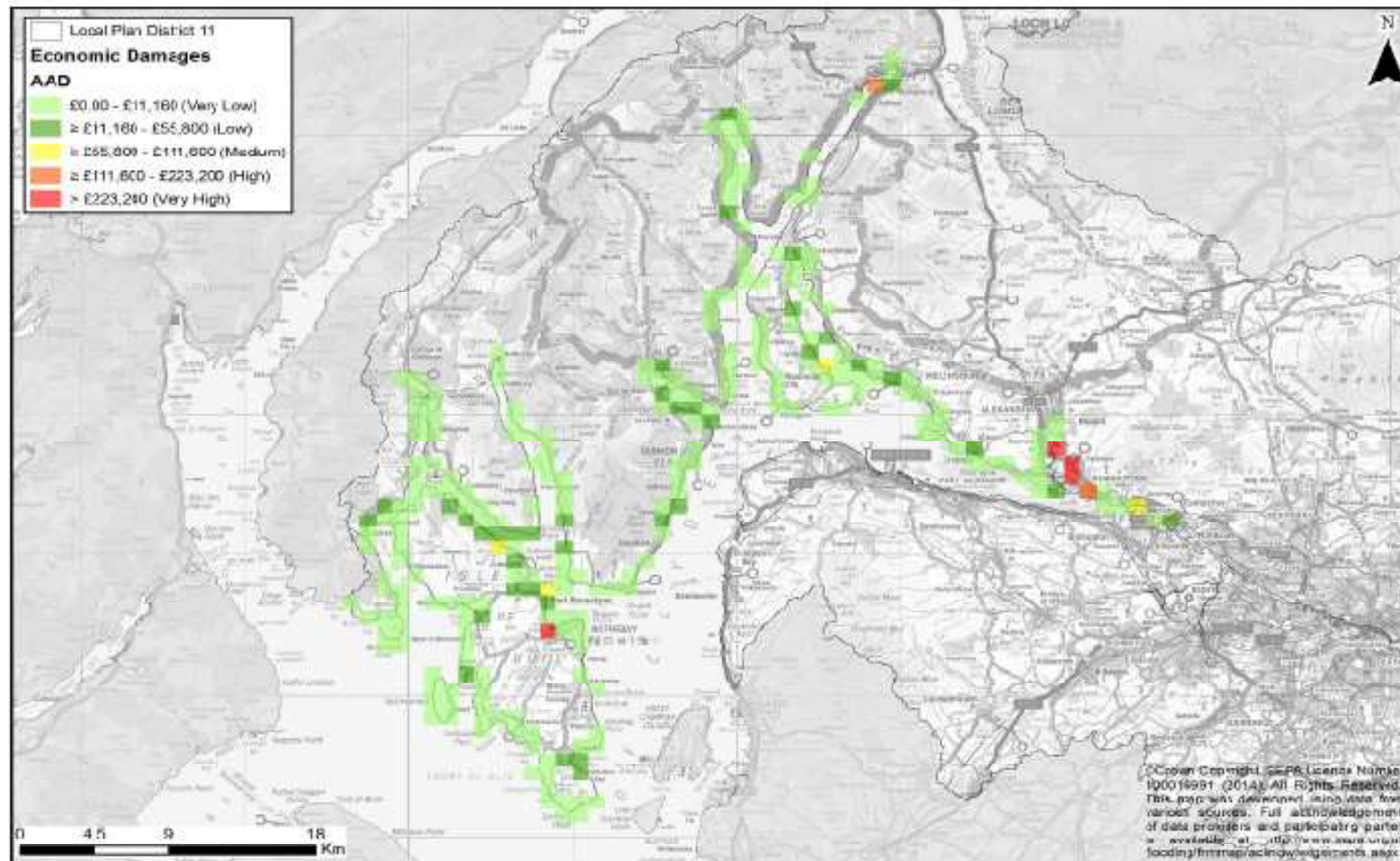


Figure 3: Annual Average Damages from coastal flooding

Flood Risk Management Act

Dunoon Pier FWTA

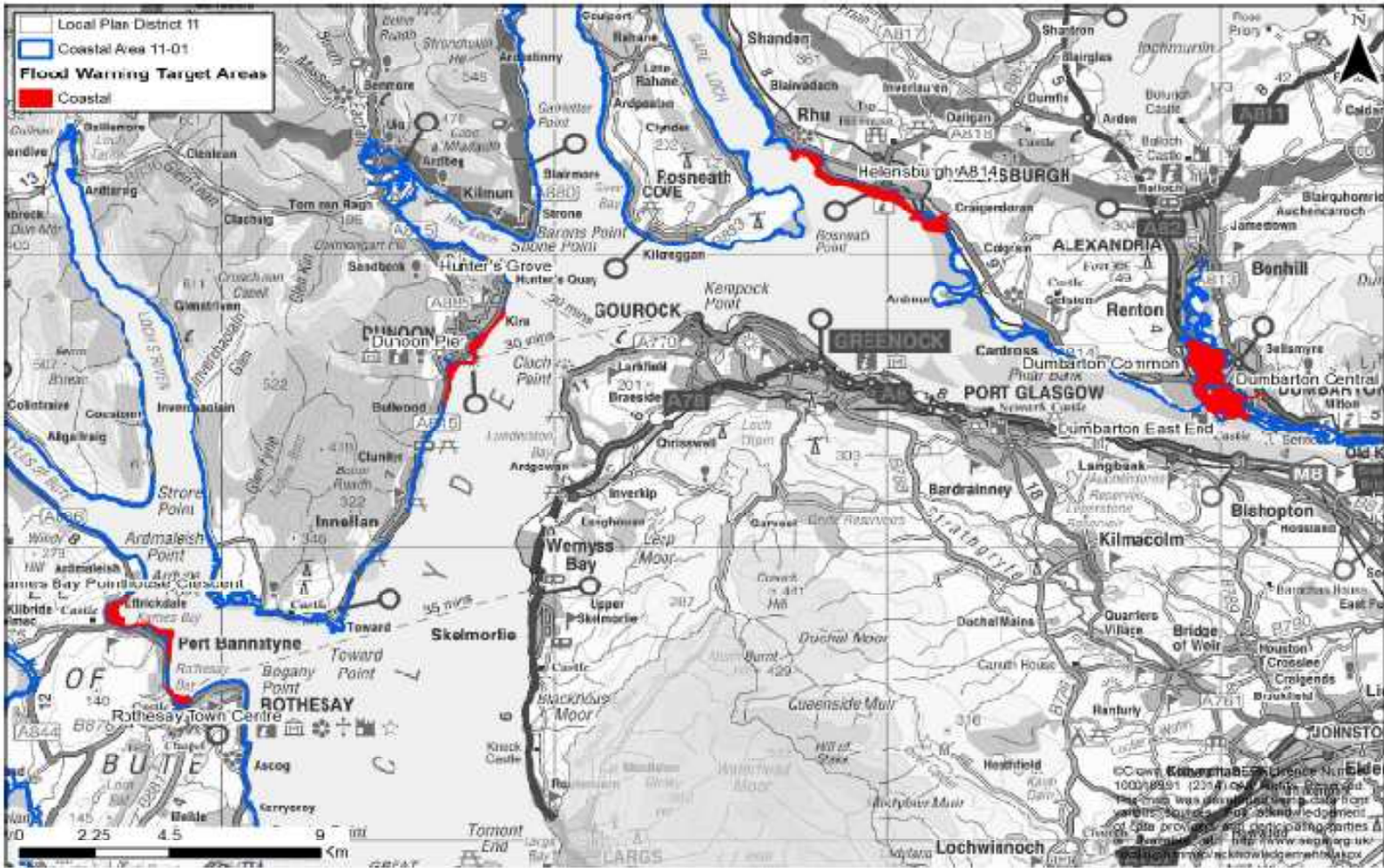


Figure 4: Flood Warning Target Areas

Flood Risk Management Act

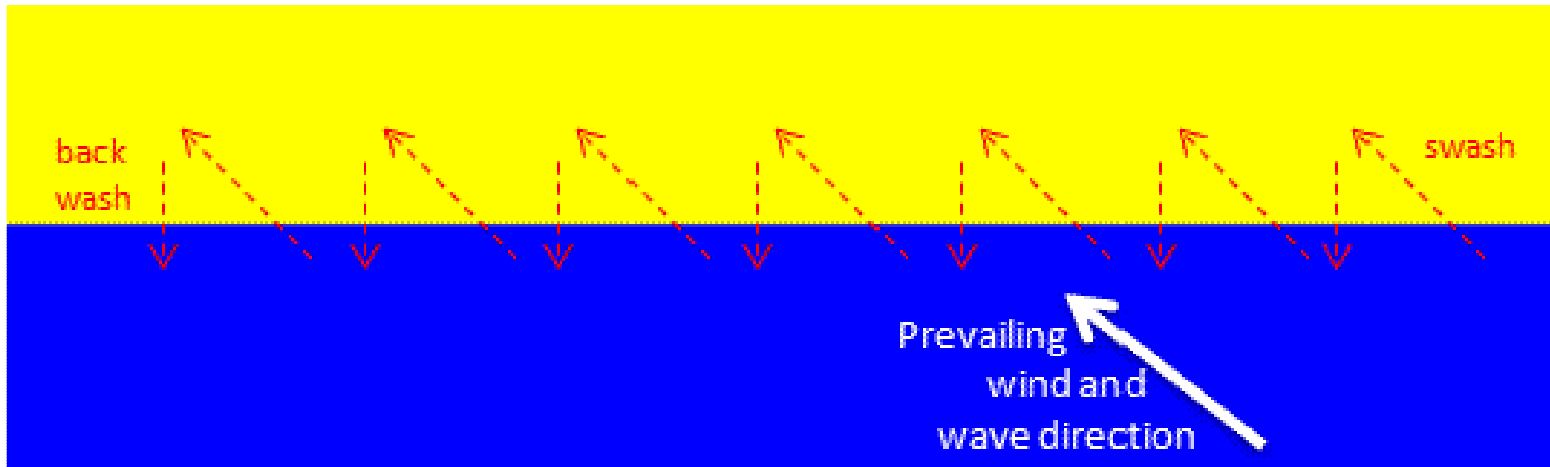
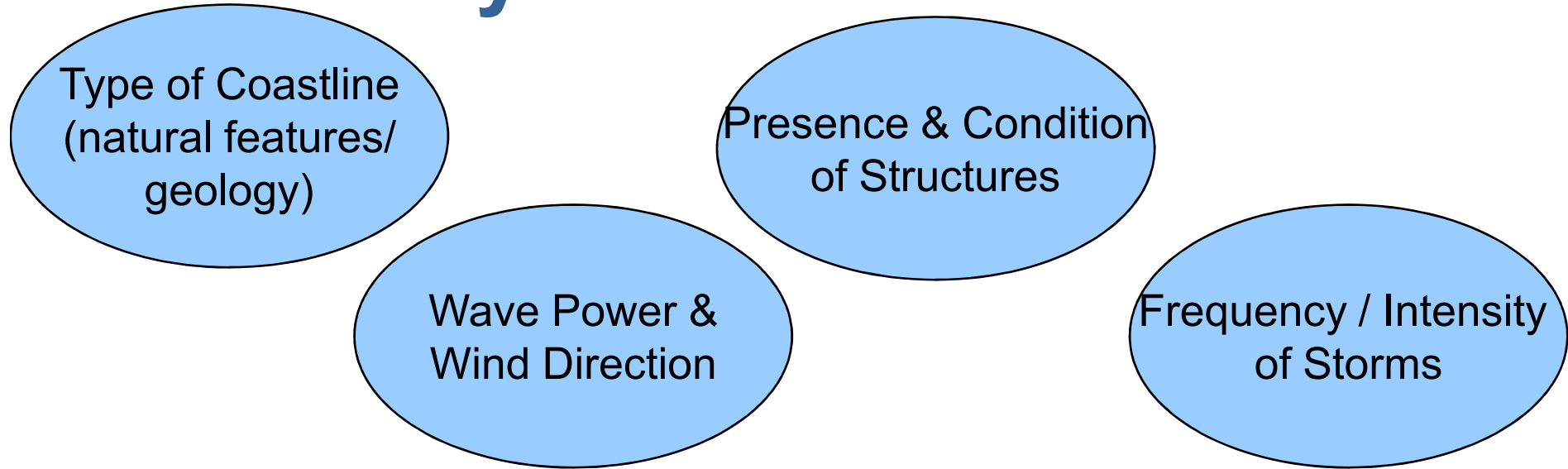


Scottish Environment Protection Agency

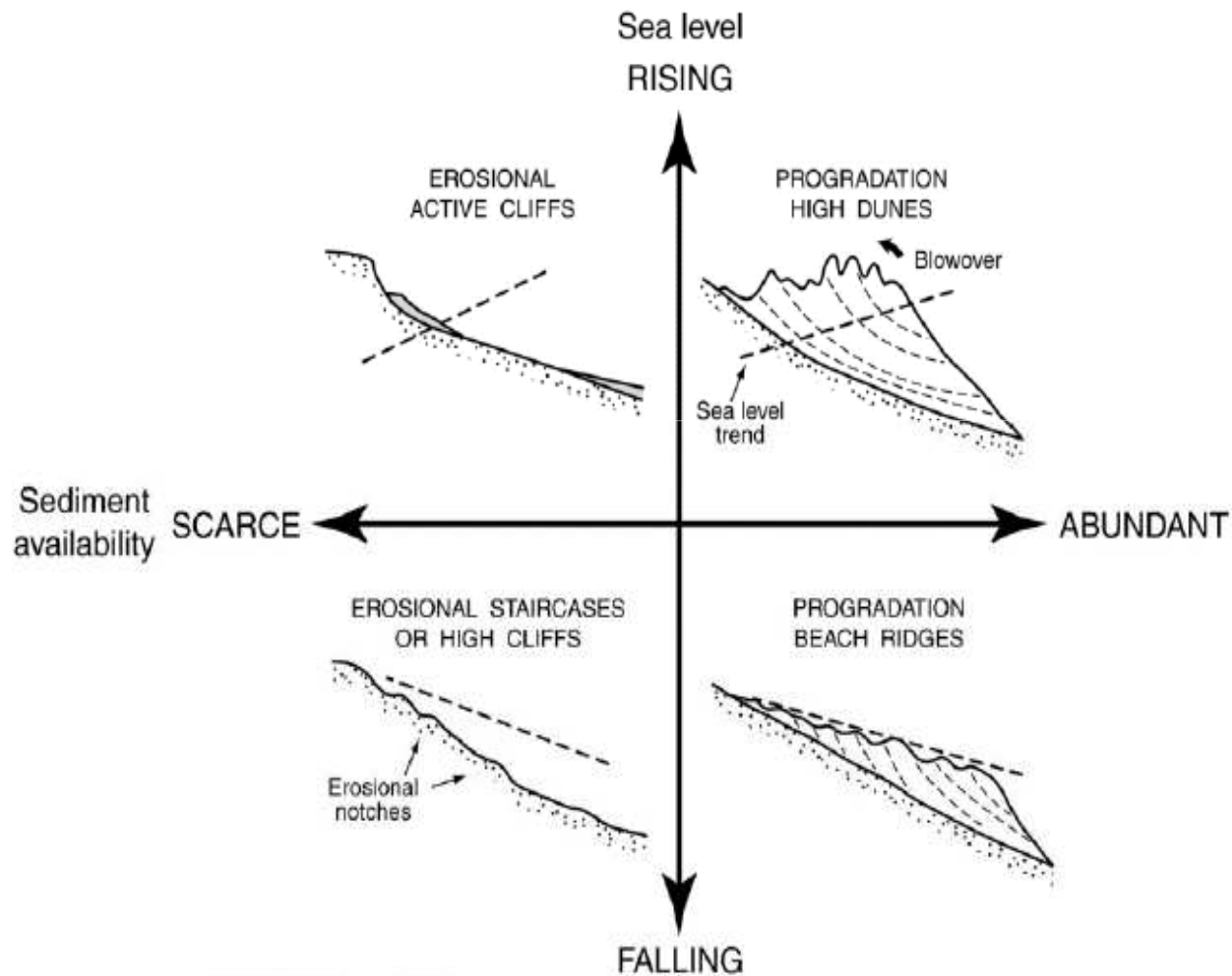
Coast Protection Act 1949

- Local Authorities permissive powers to protect the coast from erosion

Dynamic Coastline



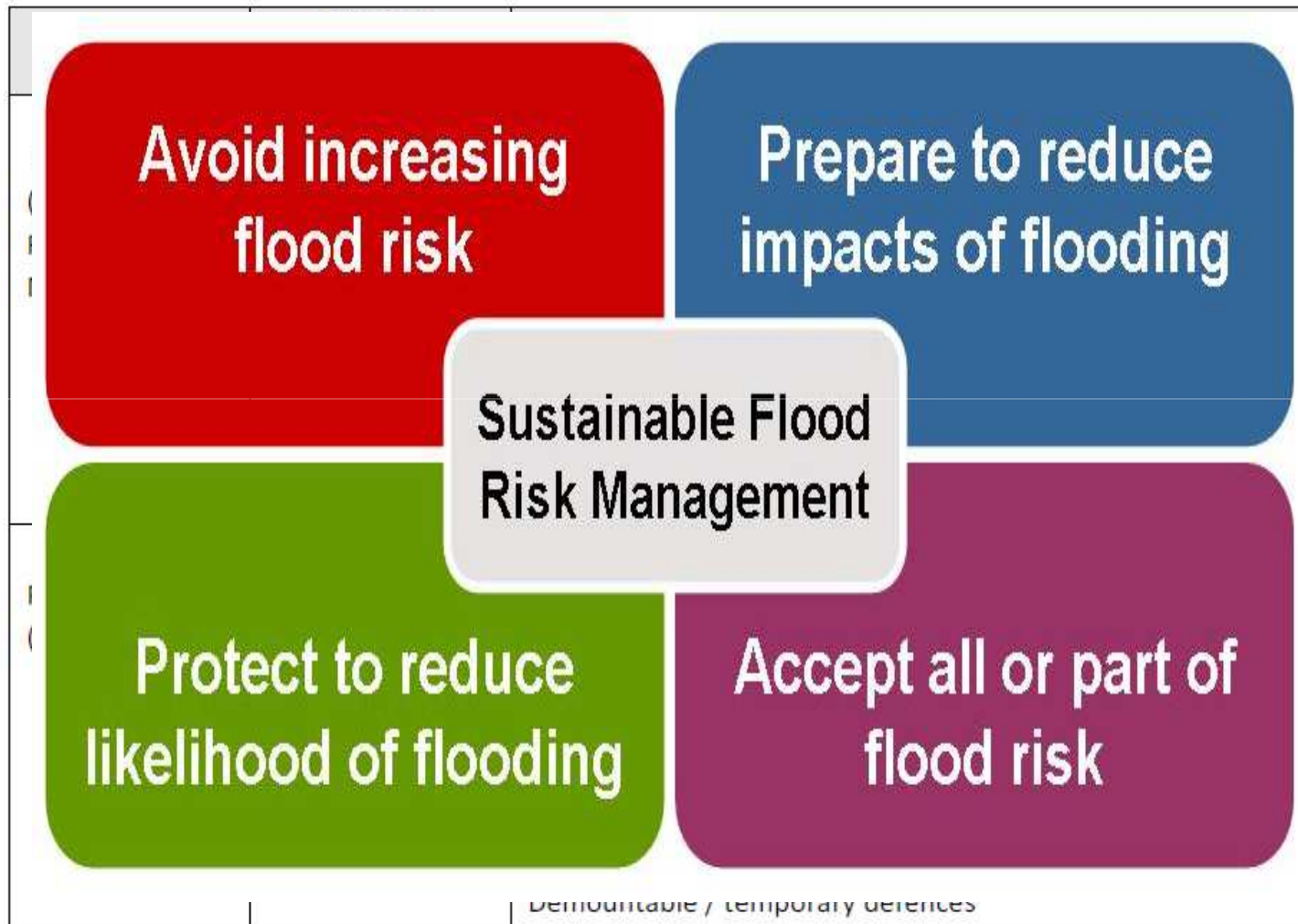
Coastline Type



Floo Figure 7: Coastal responses to sea level and sediment supply changes, Taken from Carter (1988).

Coastal Flooding Actions

Table 3: Coastal flooding measures relevant to the scope of this report



Flood Risk Management Act

Victoria Parade, summer 2012



Victoria Parade, West Bay, Dec 2014



Flood Risk Management Act

Sea Wall, Pavillion West Bay Jan 2014



Floo

Sea wall, Alexandra Parade Jan 2014



Climate Change

- 2080 high emissions scenario sea level expected to rise by ~ 50cm
- More frequent and more intense storms

West Bay, Sept 2013



Flood Risk Management Act

Vegetated Shingle

- Most coastal shingle too mobile to support plant communities
- Rare habitat: listed Annex 1 of EC Habitats Directive
- Biodiversity Action Plans (BAPs) – Nature Conservation (Scotland) Act 2004

<https://www.buglife.org.uk/advice-and-publications/advice-on-managing-bap-habitats/coastal-vegetated-shingle>

Conclude

- Coastline is dynamic
- Responsibility to manage flood risk sustainably in PVAs
- Shingle acts as natural barrier to dissipate wave energy

Any Questions?

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www.sepa.org.co.uk

Strategic Appraisal Process

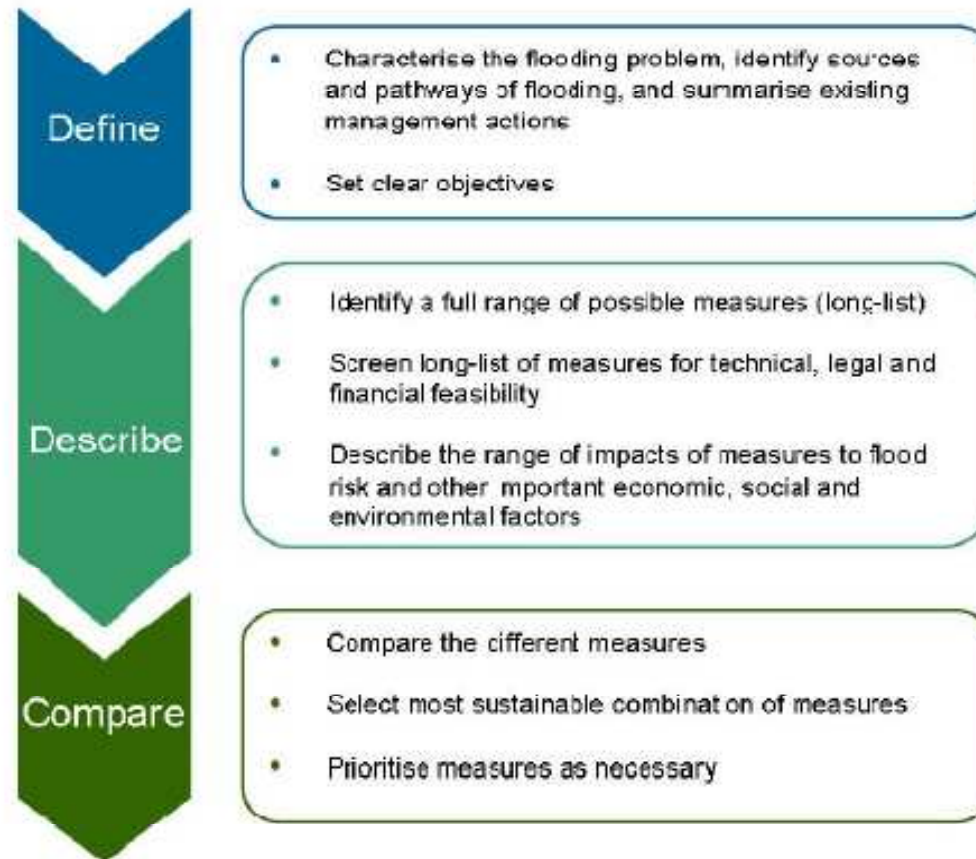


Figure 26: Stages in Strategic Appraisal (adapted from Scottish Government Guidance)³



= West Bay Beach =
A Biodiversity Perspective

Marina Curran-Colthart,
Local Biodiversity Officer,
Argyll and Bute Council



-West Bay Beach-



Coastal shingle is internationally rare and is an important and unique part of Scotland's nature.

- West Bay Beach- length 1000m approx., Esplanade 986m approx.
- Affords Dunoon and the surrounding area an amazing natural amenity with the ability to protect man-made features
- Upper reaches dominated by Shingle with a Sandy substrate
- Native Plants with some surprises colonise only part of the Beach at the southerly section.

What's Special about West Bay Beach- visitor comments

The hotel is in the West Bay, by a beach that has the best stones for skimming I have ever found, and we spent some time there before leaving Dunoon



When we walked into town for dinner we saw a seal swimming close to the shore!

Very "coastal" feeling, when you hear the waves in the evening to your room. Would go back!

We even had a dip in the Clyde!!

With perfect access to the beach our dogs had a wonderful time too!

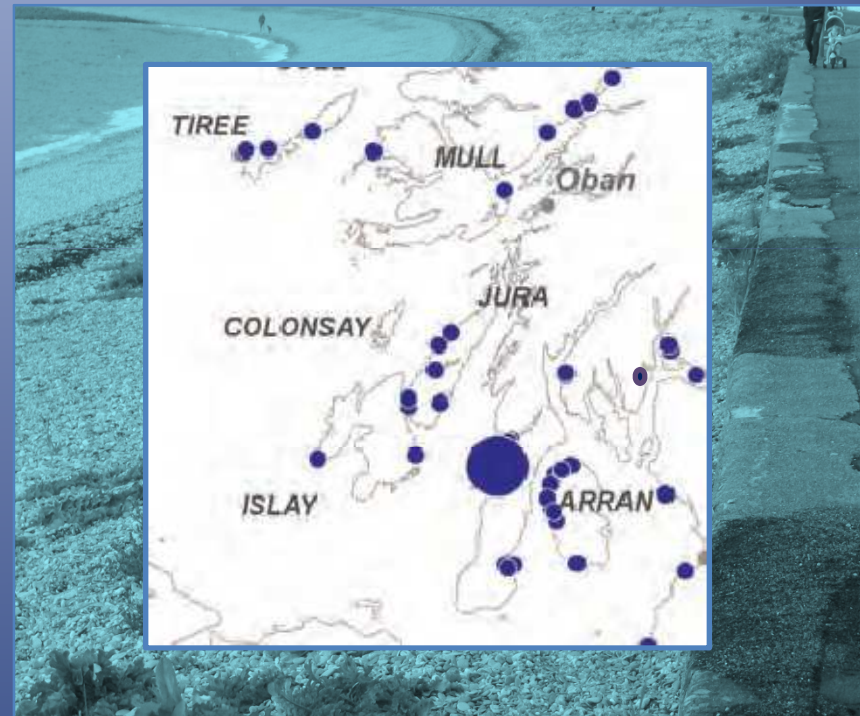
Biodiversity- Shingle and Vegetative Habitat



Shingle Beaches in Argyll and Bute

Shingle Beaches

- Shingle is defined as sediment with particle sizes in the range 2-200 mm. It is a globally restricted coastal sediment type with few occurrences outside north-west Europe, Japan and New Zealand.
- **Scotland has 1,100 ha**
- **Argyll And Bute-**
 - 50 beaches
 - 5.9 average ha;
 - 293.1- total ha



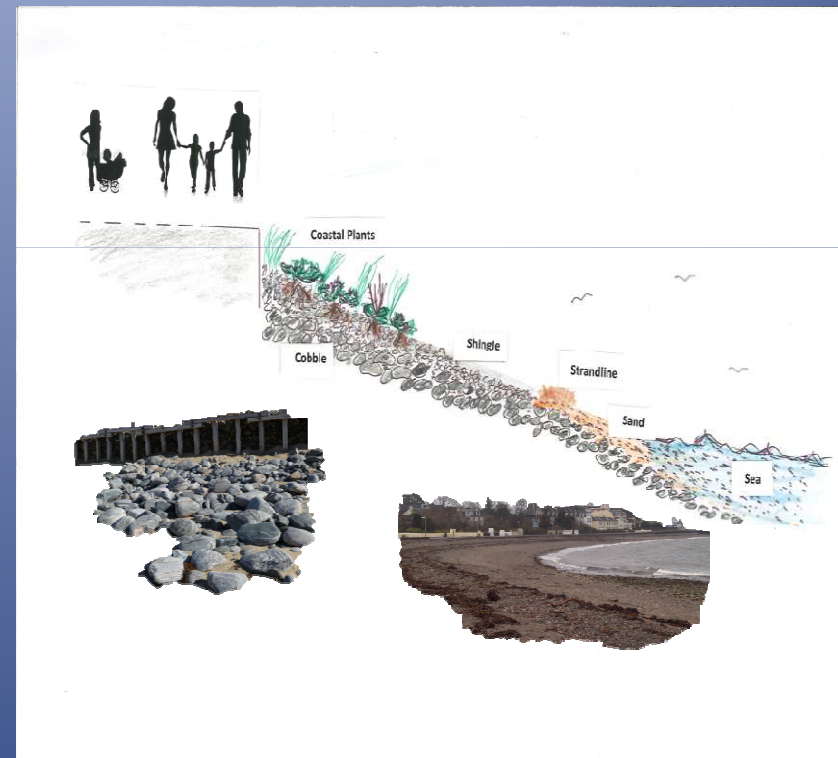
Habitat

Habitat

Coastal vegetated shingle is recognised under an EU habitat type 'Perennial vegetation of stony banks' and is a UK Biodiversity Action Plan

- West Bay beach supports some important vegetation for birds and bugs.
- Protects the coastline by forming a Natural barrier

Coastal Shingle Structure



Species.



Plant Species found at West Bay

The main National Vegetation Classification (NVC) community associated with the Shingle beach at West Bay above High Tide Mark is:

- Mayweed –*Matricaria* (Tripleurospermum)-(white daisy like flower),
- Sticky Willie- *Galium aparine*,
- Sea Kale: *Crambe maritima*,
- Sea Pea: *Lathyrus japonicas*,
- Thrift: *Armeria maritima*,
- Docken- *Rumex sp.*,
- Fat hen- *Chenopodium album*,
- Marram Grass - *Ammophila arenaria*,
Buttercup- *Ranulculus sp.* allied with some other grass species-i.e. Creeping Bent was noted.
- **Even tomatoes, potatoes and corn.**



Animals



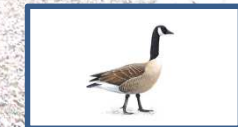
Bugs

- Bug *Rhopalus rufus*
- Bug *Monosynamma maritima*
- Leafhopper *Aphrodes duffieldi*
- a Cuckoo bee *Nomada ferruginata*
- Brown banded carder bee (*Bombus humilis*)
- Large garden bumblebee (*Bombus ruderatus*)
- Shrill carder bee (*Bombus sylvarum*)
- Gilkicker weevil (*Pachytychius haematocephalus*)

Some Birds and Mammals



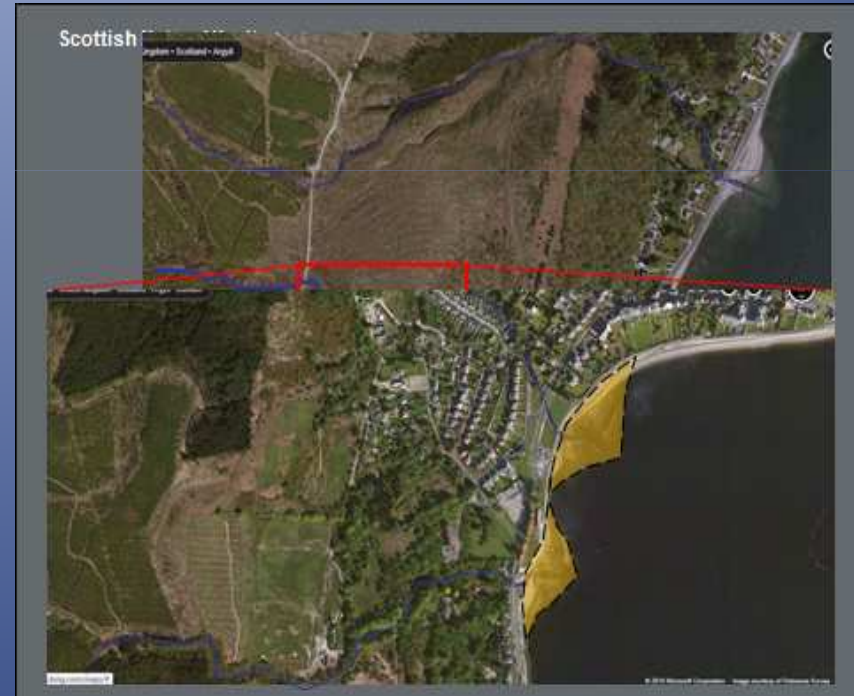
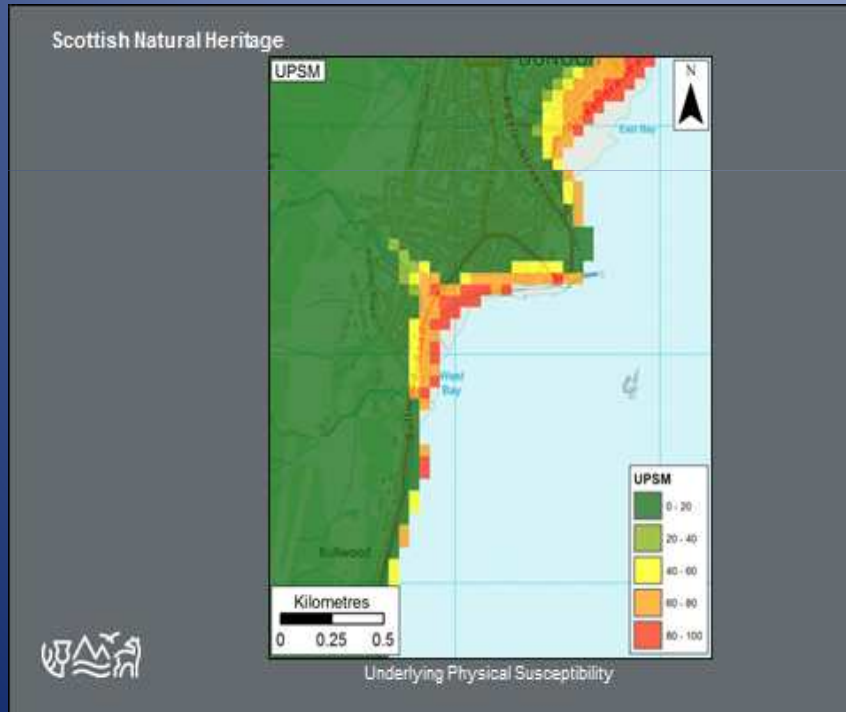
- **Gull sp. Common, Herring, Black headed**
- **Oyster Catcher,**
- **Cormorant,**
- **Shag**
- **Turnstones**
- **Mallard,**
- **Canada Goose**
- **Swan**
- **Other Waders**
- **Otter seen occasionally**



Drift Susceptibility

Model

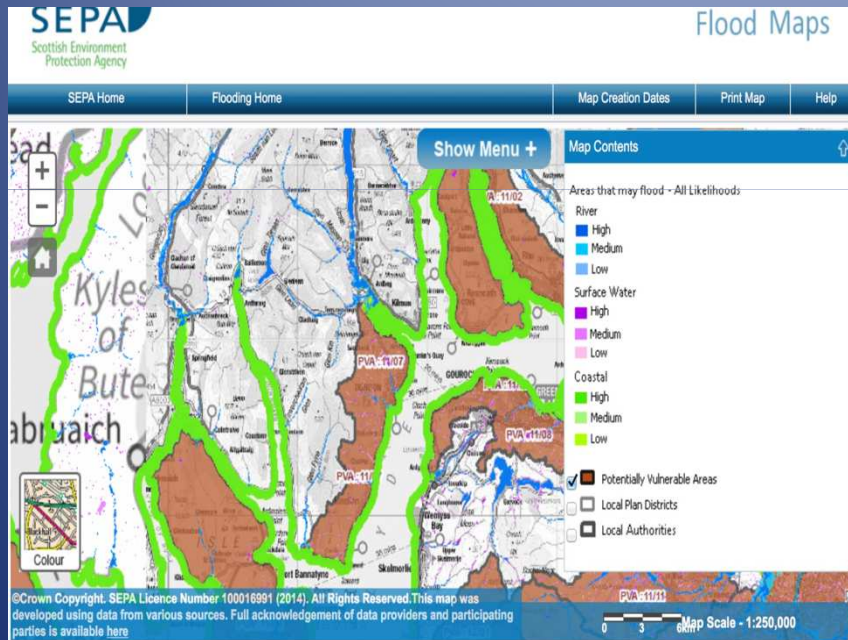
Coastal drift.



Flood Risk

SEPA Map

Dec 2014



Action Proposals



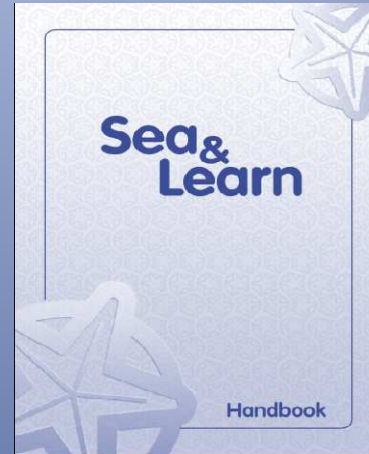
Advisory	Action
1. Shingle vegetation is hardy and the best management is often to do nothing.	Survey and Monitor species diversity and extent within the beach. Cut seed heads of Docken at base, bag and remove off site. The leaf vegetation is the food for the Docken beetle.
2. Invasive species can have a huge impact on habitats and the flora within them, often changing the dynamic of the environment until the habitat is unrecognisable from its original form.	Survey and if found develop an eradication programme. Because of the substrate, I suggest cultural control-Pulling, bag and remove off site- consult SEPA on this. Other invasive's such as Tomato Plants, Potatoes, Corn and any other food species can be pulled and bagged without a licence.
3. Monitor changes in substrate movement.	Survey distribution of substrates, exposed cobble, shingle and sand.
4. Install an Interpretation Board	Gather information on historical, biodiversity and images of species and beach profile. Funding?
5. Education	Develop a local schools project as part of the Sea and Learn Pack.

Educational- opportunity.



Schools project:

- Sea and Learn Pack
- Adopt a Beach
- Practical project-



Getting to know our beach, Structure, Zones, Plants and Animal.

Project area- establish Marram grass,

- Beach School run by the GRAB Trust.

Policy Opportunity!



- Develop an Argyll and Bute Policy for Beach Management
- Strategy? A Generic management plan?

For discussion.



'the best stones for skimming I have ever found,

Thank you for your time and interest.

