



## Ecosystem Services


This summary focuses on broad services and benefits from the natural assets in the place. A potential 13 ecosystem services can be estimated in terms of quantity and value using the Environment Agency Register and account (icons below). We have used data for the ecosystem services listed on the right hand side.




Agriculture




Fish Landings




Water Supply




Timber



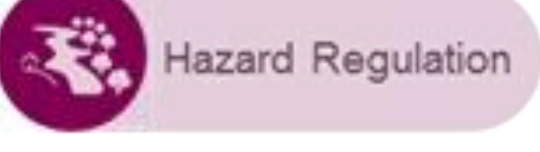
Renewable Energy



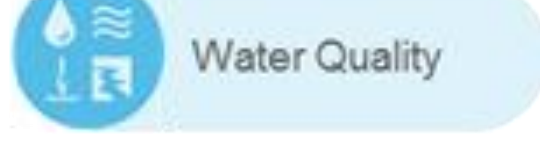
Climate Regulation



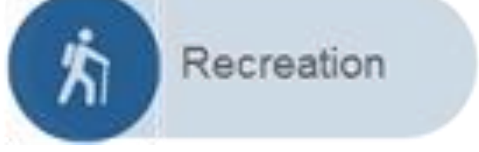
Air Quality




Hazard Regulation




Water Quality




Recreation




Physical Health



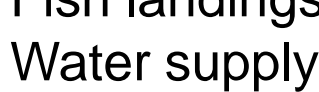
Education



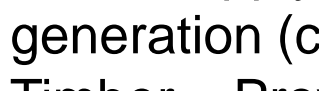
Volunteering




Agriculture – Production of wheat, dairy and livestock from farmland




Fish landings – Provision of marine fish by local fishing vessels



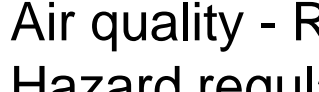
Water supply - Water for domestic use, agriculture, industry and power generation (cooling)



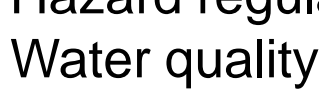
Timber – Provision of timber-based products by woodland



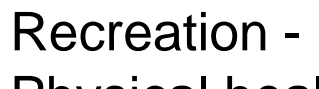
Renewable energy – Energy available from hydropower generation




Climate regulation - Carbon sequestered by habitats




Air quality - Removal of air pollutants (PM2.5, SO<sub>2</sub>, NO<sub>2</sub>, O<sub>3</sub>) by habitats




Hazard regulation - Flood storage provided by woodland




Water quality – Welfare benefit of good water quality




Recreation - Recreational visits to open green space



Physical health – Health benefits of active visits to green space




Education – Additional opportunity of education in nature-based settings



Volunteering – Opportunity for nature-based volunteering


## Valuing North East Lincolnshire Natural Capital




Natural Assets

15,330 hectares

Total land area.




10,692 hectares of **enclosed farmland**.  
The largest natural capital asset type at **69.7%** of total area.



Ecosystem Services


£36.2 million

Total annual value of services from natural capital.




£18 million per year

The annual value from **recreation**.  
The largest ecosystem service by value for the place.




Benefits

The ecosystem services and the benefits that flow from them



Welfare value from **recreation** of over **5 million** visitors to open green space across North East Lincolnshire.




Value

£1.12 billion

Total asset value of natural capital over the next 100 years.

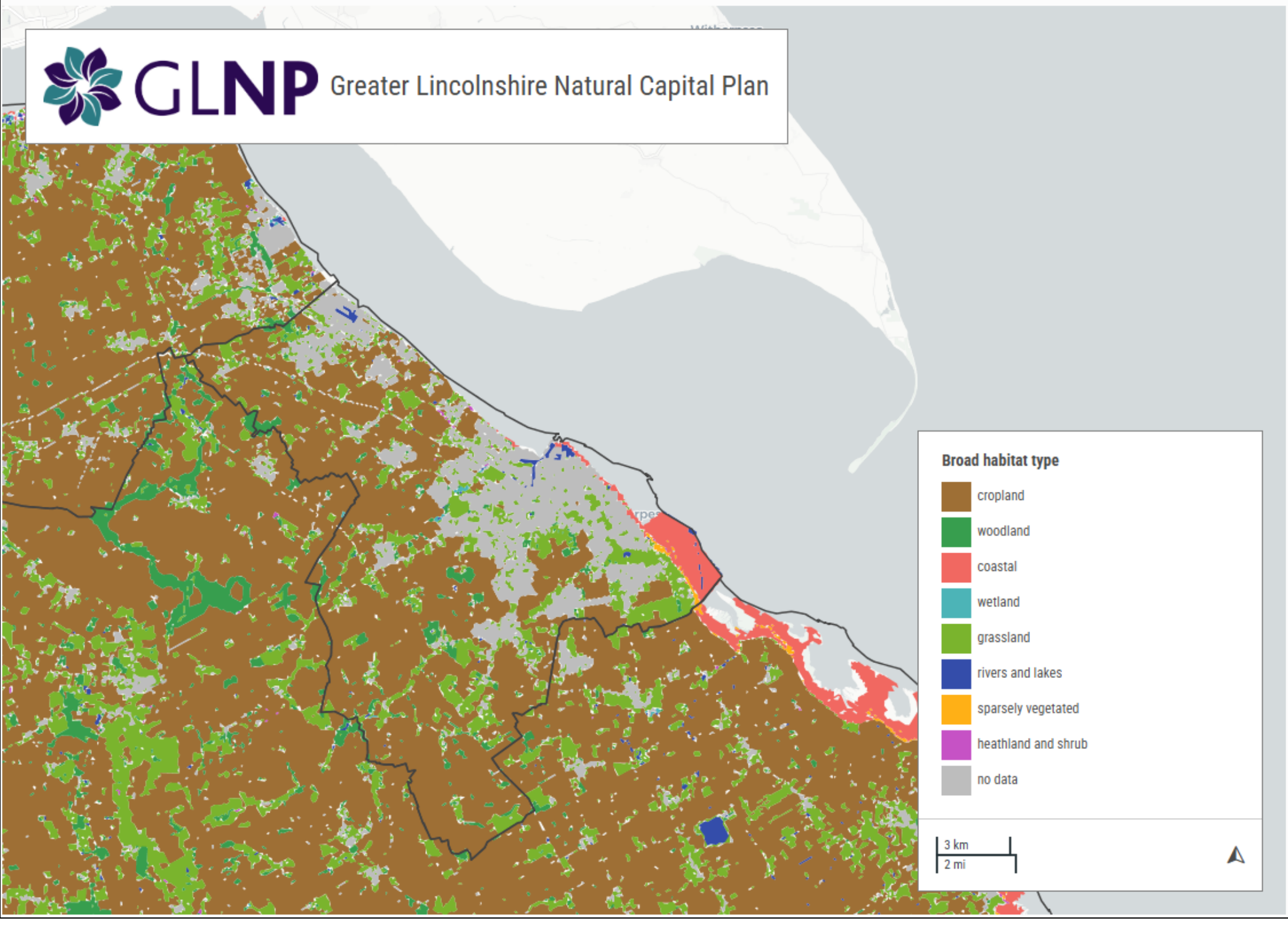
£528 million

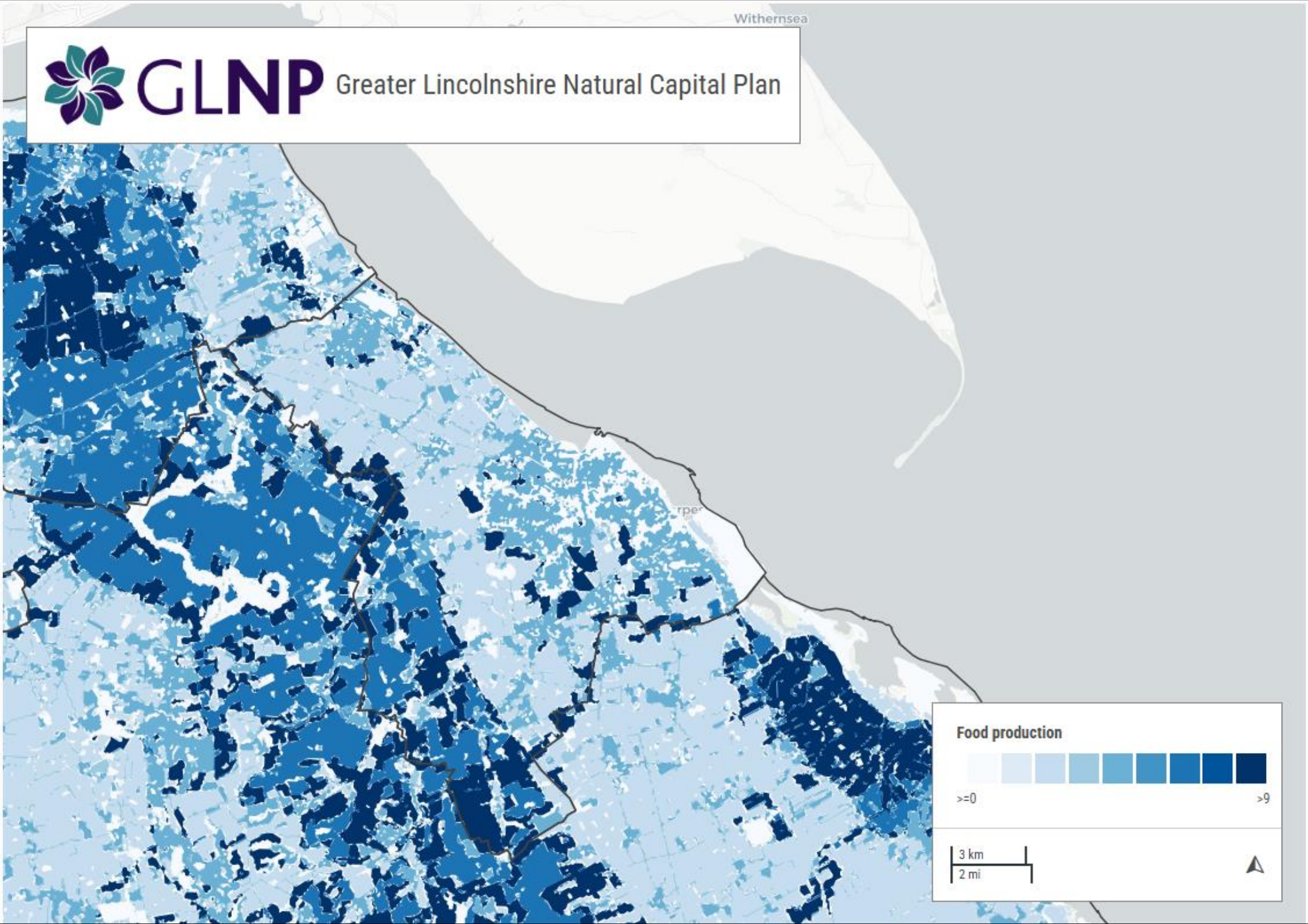
Total asset value from **recreation** over the next 100 years.  
The largest asset value

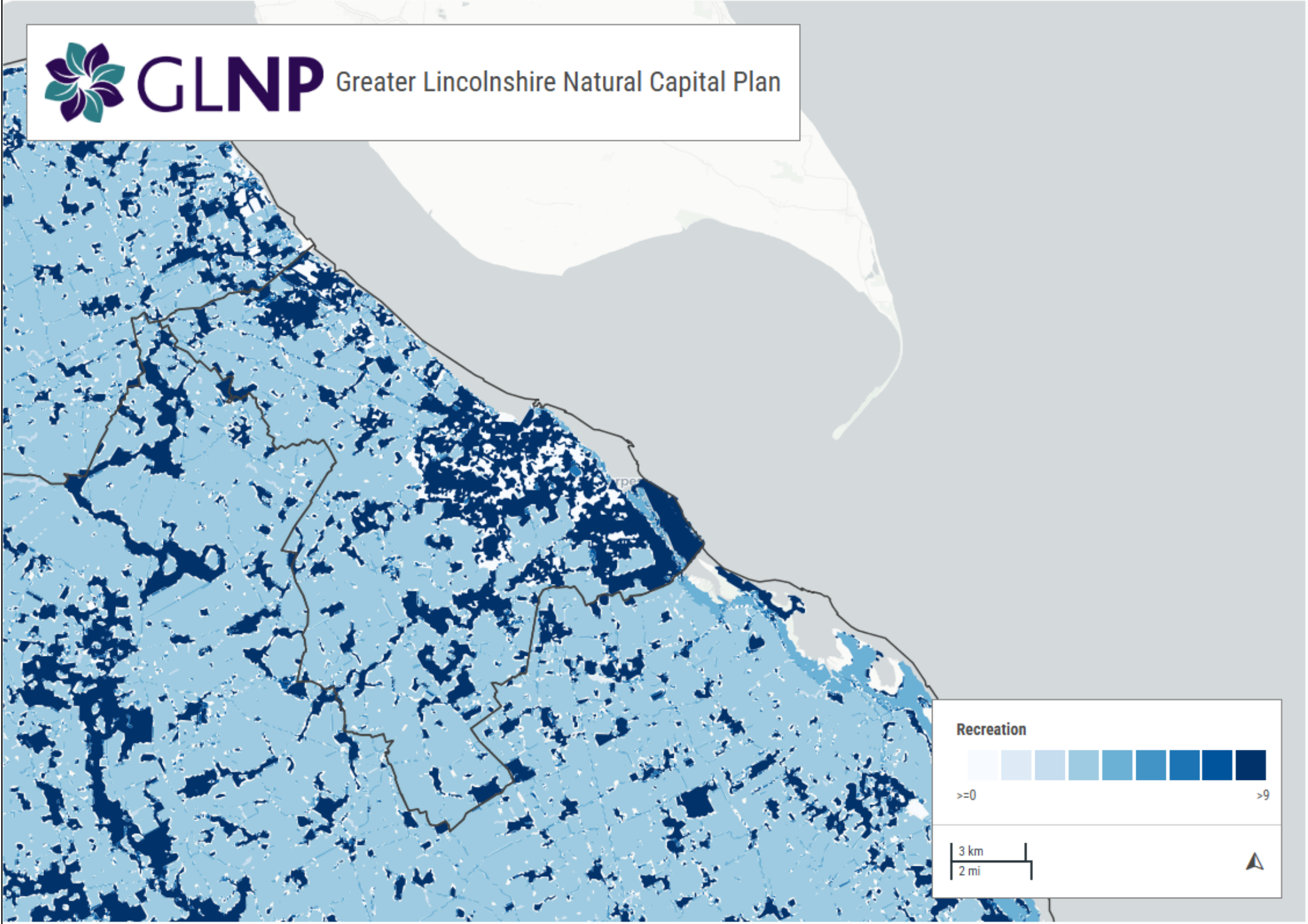


## Natural Assets

Agriculture and recreation were identified as the ecosystem services which provide the most value in the area covered by these accounts. The below maps show the area's overall natural capital stocks in the form of broad habitats as well as identifying areas of habitat with the greatest potential to provide these services. Please note that delivery of services may rely on accessibility of or proximity to beneficiaries.







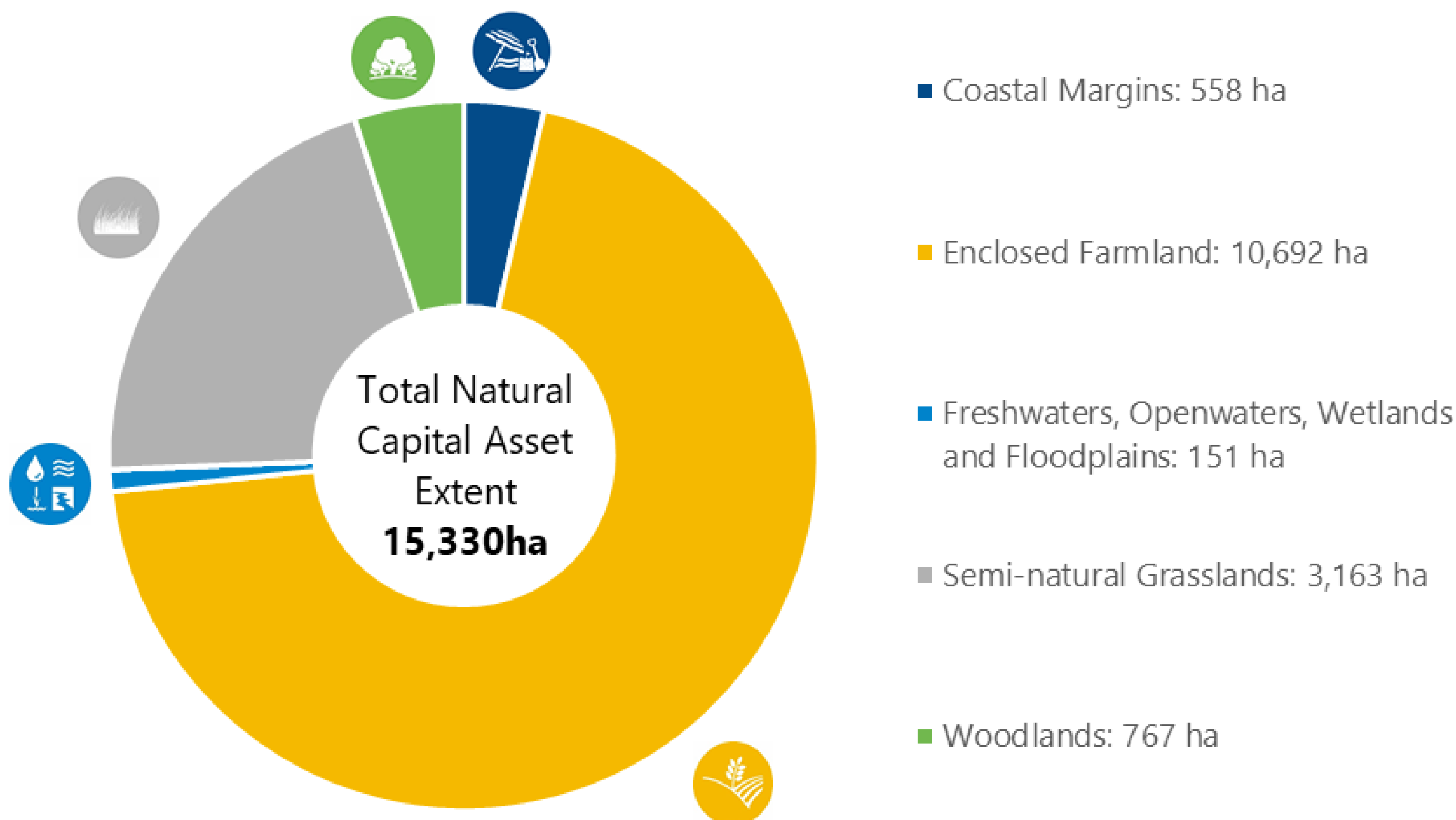




## Natural Assets

Enclosed Farmland makes up the majority of the area's natural assets, contributing to multiple ecosystem services including agriculture, recreation and health.

### Natural Capital Extent



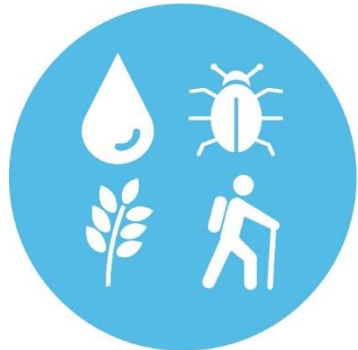
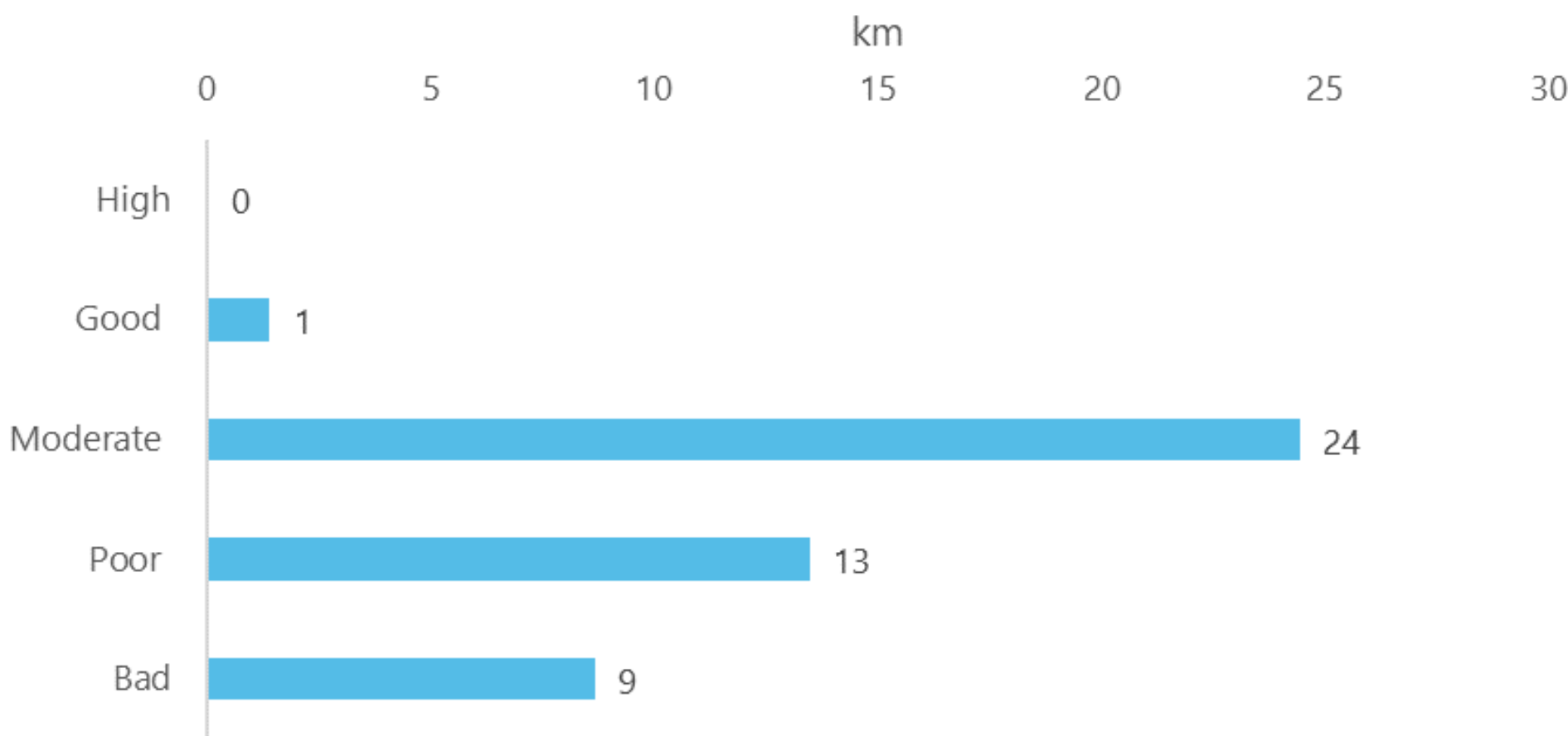
### Risk Register

High: High likelihood the pressure will affect natural asset(s) relative to other pressures listed  
Medium: Medium likelihood the pressure will affect natural asset(s) relative to other pressures listed  
Low: Low likelihood the pressure will affect natural asset(s) relative to other pressures listed

Natural capital assets	Pressure on asset:	
	Quantity	Quality
Coastal Margins	High	High
Enclosed Farmland	Medium	High
Freshwaters, Openwaters, Wetlands and Floodplains	High	High
Marine	Medium	High
Mountains, Moorlands and Heaths	Medium	Medium
Semi-natural Grasslands	High	High
Urban	High	High
Woodlands	Medium	High

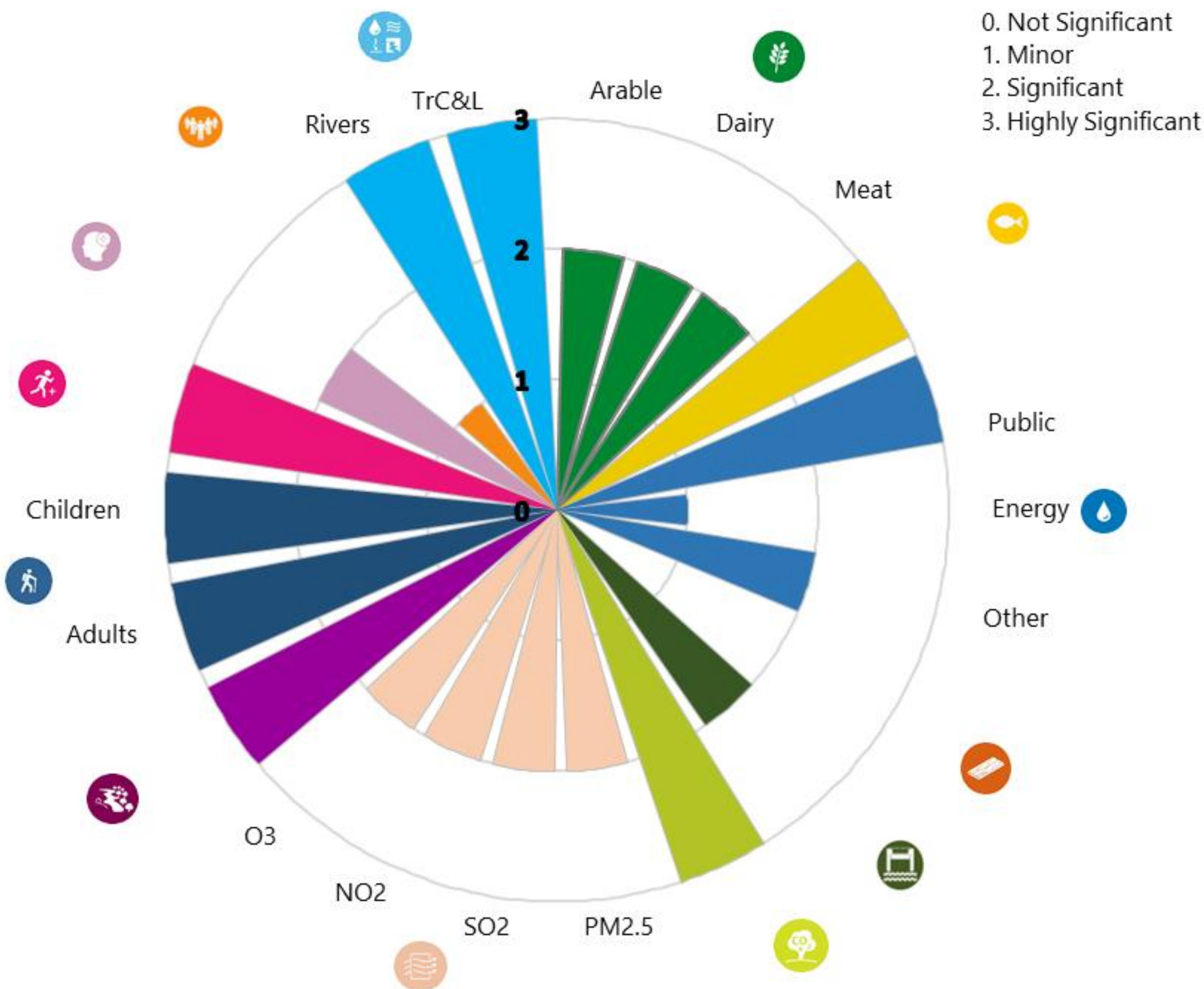
### River Length by Ecological Status

Based on 2019 WFD Cycle 3 classification data



## Ecosystem Services

Significance assessment for each of the ecosystem services in the place. The sections of the wheel indicates the significance rating for each service provision from 3 highly significant, 2 significant, 1 minor and 0 not significant relative to the other services within the place and assuming the natural assets shown above are in good condition







## Benefits

We have estimated the flows of ecosystem services that are derived from natural assets within this place, then estimated the value of the benefits those services provide. The analysis is not exhaustive and does not include all assets, services and benefits. We have indicated the confidence we have in the valuation as High (3 coloured squares), Medium (2 coloured squares), or Low (1 coloured square)



Natural Assets



Ecosystem Services

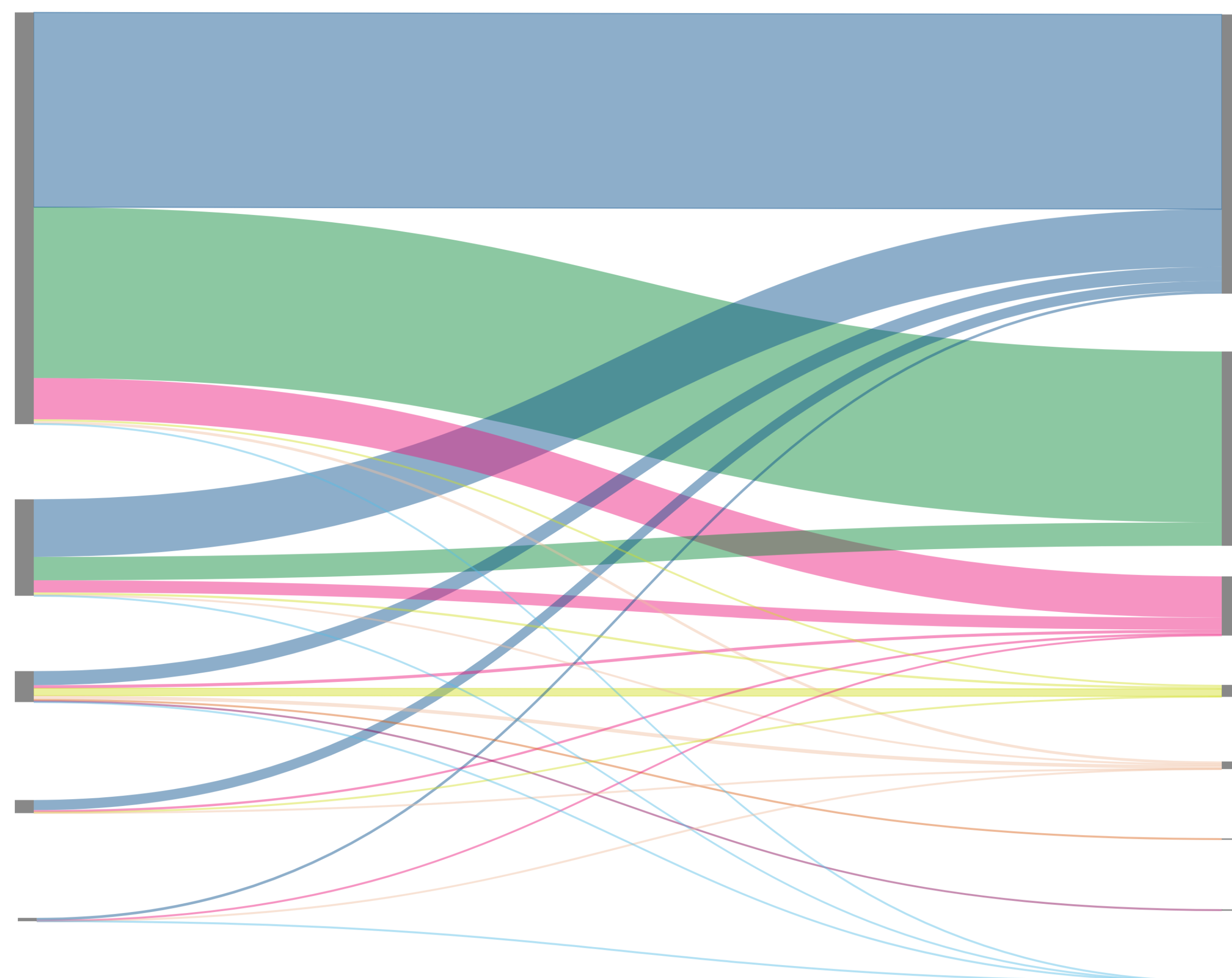


Benefits



Value

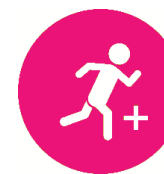
\*



Welfare value from recreation of over 5 million visitors to open green space



Agriculture production from over 10,500 hectares of farmland



Health benefits of active visits to green space



The value of **7,100** tonnes of carbon being sequestered from habitats, mostly by **woodland**. Climate change affects the social and environmental determinants of health



Avoided health damage costs due to the removal of **830** tonnes of air pollutants



The net value of an estimated 3431 m3 volume of timber removed per year



The estimated value of more than **209,930** m³ of flood storage provided by woodlands



The welfare benefit of good water quality

**£1.12** billion  
**Total** asset value for natural capital over the next 100 years.

**£36** million  
**Total** annual value of services From natural capital

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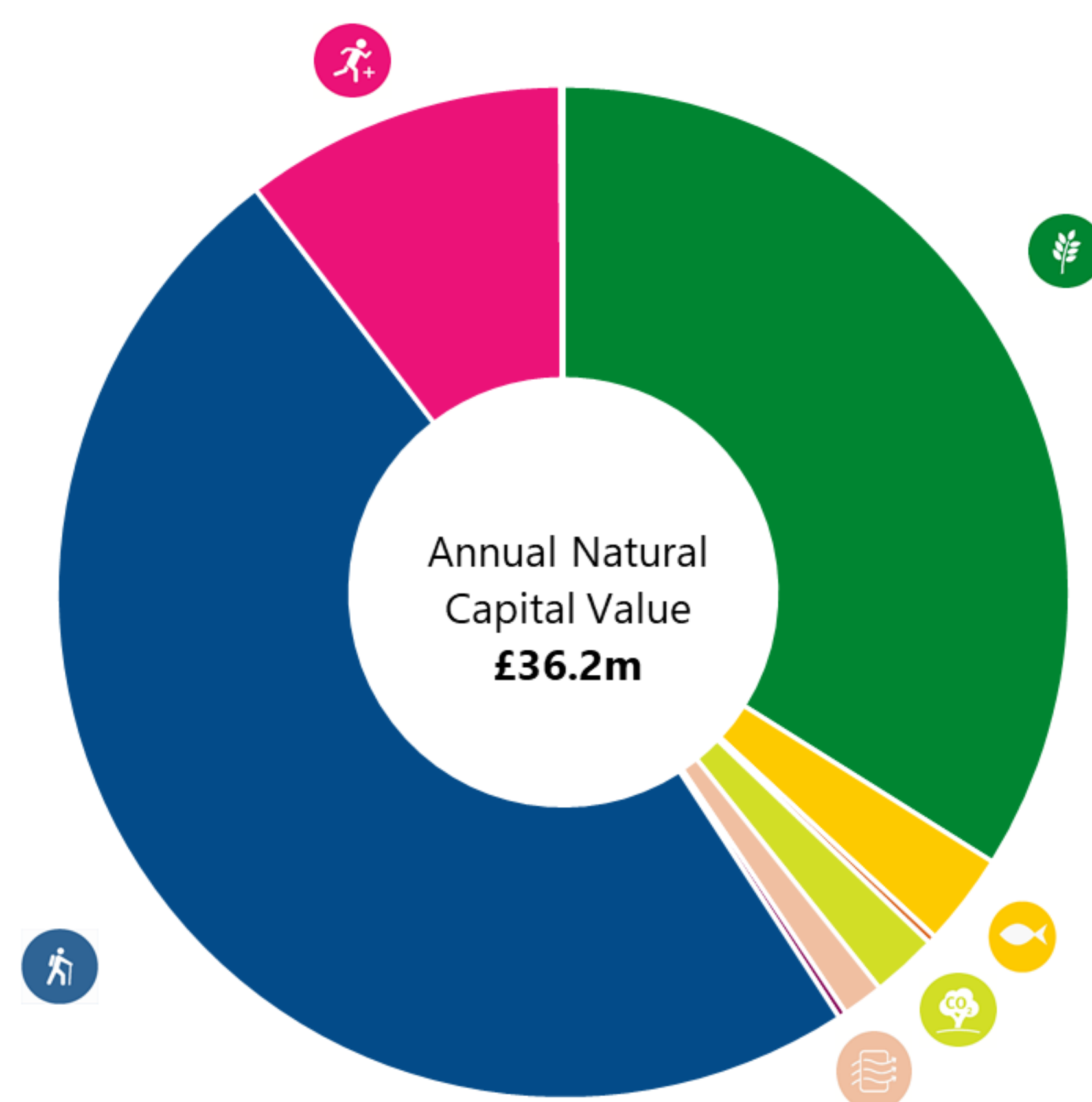
\*

This account does not calculate values from marine assets (unless fish landing data is included)



## Value of natural capital benefits

The ecosystem services for this place have been quantified, with a conservative estimated benefit value of **£36m annually**.



■ Agriculture: £12m

■ Fish landings: £1m

■ Climate regulation: £1m

■ Recreation: £18m

■ Physical Health: £4m

Note: not all services and benefits can be quantified.

The total values of assets and services in a natural capital account will always be an underestimate. It is not possible to present the total value of all the services provided by a place only a partial estimate.

However the assessment is sufficiently illustrative of the significant value that the natural capital provides to its communities and businesses.

## Additional Values

The natural capital account for Greater Lincolnshire also identifies a small value provided to education and volunteering, however the data set was not considered great enough for the totals illustrated by the tool to be considered to be a true reflection of the value. Please see the complete accounts for Greater Lincolnshire for figures.

While not included within this account, due to lack of data it is recognized that there is a value of nature to water abstraction within Greater Lincolnshire.

For services valued at less than £1m per year please see full account available as a spreadsheet.



# Input data sources

- Habitat quantity data for 8 broad habitat types – Lincolnshire Environmental Records Centre Data.
- Habitat quantity data for saltmarsh – Lincolnshire Environmental Records Centre Data
- Peatland extent - Lincolnshire Environmental Records Centre Data
- River; Transitional and coastal waters; lakes ecological status – EA WFD classifications 2019
- Operational catchments - <https://data.gov.uk/dataset/71581966-1935-411e-ab66-f32d960497e8/wfd-surface-water-operational-catchments-cycle-2>
- Water supply (all) – EA water resources GIS (2019)
- Installed hydrogeneration capacity - BEIS Renewable electricity generation by local authority 2018 (.gov.uk)
- Fish landings - MMO (2019) UK Sea Fisheries Annual Statistics Report 2018
- Recreation, visits by socio economic group – Outdoor Recreation Valuation Tool, University of Exeter
- Recreation, Welfare values by socio economic group - Outdoor Recreation Valuation Tool, University of Exeter
- Education – Local groups and organisations
- Volunteering – Local Groups and organisations
- Data used to estimate the benefit flows and valuation of ecosystem services is described in the Environment Agency Natural Capital Register and Account Version 1 - Technical Report (January 2021)

# Caveats and limitations

- A natural capital register and account will only ever reveal a partial value of nature.
- There are many services and functions of nature that are not valued in this tool (e.g. noise regulation; pollination; flood regulation by saltmarsh and wetlands for example) and there are many ecosystem services that can not be effectively valued in any account e.g. the value of biodiversity.
- There are values for ecosystem services presented here. These are intended to show a partial view of what nature provides to the local economy for free, or little input; rather than a price, or a value for exchange. Previously natural resources have not been valued at all, leading to reduction in, or mismanagement of the asset.
- Please note that agricultural value has been calculated using an national average breakdown between the constituent parts of the sector. This is due to discrepancies in the CORINE Land Use data relating to the area.

# Benefit description

<b>Agriculture</b>
Agriculture production from over xxx,xxx hectares of farmland. XX% arable land by area (xx% of the annual value). XX% pasture land by area (livestock accounting for XX% of the annual value)
<b>Recreation</b>
Welfare value from recreation of XXX million visitors to open green space across [template].
<b>Physical health</b>
Health benefits of active visits to green space.
<b>Water supply</b>
The value of water abstracted for domestic use, agriculture, industry and power generation (cooling). Access to clean water underpins our health and industry.
<b>Water Quality</b>
The welfare benefit of good water quality which includes safety of recreation, clarity, flow, and thriving invertebrate, plant, and fish populations.
<b>Air quality</b>
Avoided health damage costs due to the removal of X.X million tonnes of air pollutants.

<b>Climate Regulation</b>
The value of XXX,XXX tonnes of carbon being sequestered from habitats, mostly by XXXX. Climate change affects the social and environmental determinants of health.
<b>Timber</b>
The net value of an estimated XX,XXX m3 volume of timber removed per year across [template] Area
<b>Hazard regulation (N)</b>
The estimated value of X.X million m³ of flood storage provided by woodlands across the [template]
<b>Fish</b>
Estimated market value of marine fish landings from local boats
<b>Volunteering</b>
The estimated value of time spent on nature-based volunteering
<b>Education</b>
The additional benefit of nature-based school educational visits
<b>Renewable energy</b>
Value of installed capacity for hydropower generation

# Habitat type icons

Farmland	
Urban	
Semi-natural grassland	
Water and wetlands	
Woodlands	
Coastal	
Marine	
Mountains, moorlands and heath	

# Ecosystem services icons

Agriculture		Climate regulation	
Water Quality		Renewable energy	
Volunteering		Recreation	
Air quality		Water Supply	
Timber		Fish Landings	
Education		Physical Health	
Hazard Regulation			