

Background

Auchmithie © Kelly Ann Den

For centuries people have used the coasts and estuaries of Tayside as a source of food, for sheltered anchorage and for trade. It is a landscape of great beauty, exhibiting a diversity of features from the muddy shallows of Montrose Basin, the sand dunes of Barry Links and the wide, nutrient-rich Tay Estuary. The variety of life supported by coastal habitats includes groups of dolphin and porpoise, shoals of commercially important fish, tiny zooplankton, resident seabirds and internationally-important numbers of migrant birds such as pink-footed geese.

The reedbeds in the Tay Estuary are the largest continuous stand of this habitat anywhere in Britain, one of the largest in Europe - and they are the only place in Scotland where the rare Bearded tit breeds. The beds of seagrass and seaweed also provide important nursery grounds for flat fish in the summer and food for ducks and geese in winter. The coasts and estuaries are under increasing pressure from human activity – commercial fishing, recreational use, climatic erosion, the development of urban areas and ports, to name just a few.



Marine ecosystems are particularly difficult to access and understand, although more is known about coastal habitats and our influence upon them. Increased consultation and work between those influencing these habitats has resulted in a better understanding for the value of coasts and estuaries in Tayside. This has engendered a greater willingness to work together to conserve and enhance the habitats, at the same time as managing change.

Objectives

- 1 Endeavour to reduce the direct pressures on coastal and marine biodiversity by implementing projects to enhance ecosystem health
- 2 Safeguard coastal and marine ecosystems, species and genetic diversity by enhancing connectivity and where possible preventing its decline
- 3 Mainstream biodiversity conservation action by raising awareness and the enjoyment of marine and coastal ecosystems of local communities

Priority Habitats

- Saltmarsh
- Intertidal mudflats
 & Estuarine Reedbeds
- Marine
- · Maritime cliffs
- · Sand dunes



Key Sites

Estuaries

Firth of Tay & Eden Estuary SPA 6,923.29 hectares

Firth of Tay & Eden Estuary SAC 15,412.53 hectares

Firth of Tay & Eden Estuary Ramsar 6,918.42 hectares

Inner Tay Estuary SSSI 4,115.38 hectares

Inner Tay LNR 1,176 hectares

Montrose Basin SPA, Ramsar, SSSI, LNR approx. 986 hectares

St Cyrus and Kinnaber Links SSSI 304.91 hectares

Lunan Water Elliot Links SSSI 27.1 hectares

Pitairlie Burn Buddon Burn

Barry Links SSSI 1027.51 hectares

Monifieth Bay SSSI 199.23 hectares

Maritime Cliff & Slope

Whiting Ness (next to Victoria Park in Arbroath) to Ethie Haven – most of this is covered by Whiting Ness to Ethie Haven SSSI – 136.17 hectares

Rickle Craig (at the north end of Lunan Bay) to Scurdie Ness (just south of Montrose at Ferryden) which is all designated as an SSSI. – 72.17 hectares

Barry Links is also notified as an SAC and the Firth of Tay & Eden Estuary SAC/SPA/Ramsar

Sand Dunes

The northern part of
Charleton and Kinnaber
Links to Montrose is
included within the St Cyrus
& Kinnaber Links SSSI

The Arbroath to Broughty
Ferry area includes Elliot
Links SSSI, Easthaven SSSI
(designated for Greater
yellow rattle), Barry Links
SSSI and Monifieth Bay SSSI



Key Species

- Wintering waterbirds, including Pink-footed and Greylag geese
- Cetaceans
- Maritime plants, including Zostera spp.
- · Breeding seabirds
- · Coastal invertebrates

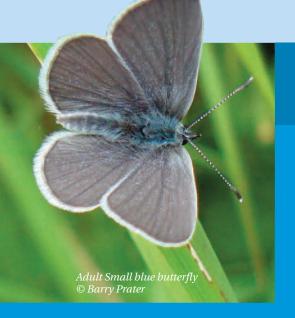


Angus Cetacean Awareness Project

The cetacean survey incorporating the coast from the Tay to St Cyrus continues to focus on the collection of anecdotal sightings data from the Angus community, awareness raising and the promotion of coastal locations in Angus. The website www.marinelifeangus.co.uk was launched on the International Day of Biodiversity (May 2012) and is promoted by small business card size cards and a colourful poster. These are distributed to a wide range of visitor attractions along the Angus and Aberdeenshire coasts. The website reaches a wide audience having been promoted by VisitScotland on their website and on the new Angus Ahead website.

Since recording began in 2011 sightings from members of the Angus community have included Bottlenose dolphins, Minke whale, Harbour porpoise, Common dolphin and even Humpback whales have occurred at many locations along the coastline of Angus. All sightings are fed into national recording schemes and help to conserve species and habitats.





Back From The Brink:

Using a local, collaborative approach to aid in the rescue of a vulnerable, fragmented *Cupido minimus* population in North East Scotland.

Butterflies are a species like many others that are vulnerable to 21st century anthropogenic threats such as climate change, habitat destruction and unsympathetic land management practices. The UK has seen a decline in many species and our smallest native species the Small Blue (*Cupido minimus*) has seen a great decline in numbers over recent years. Scotland holds some strongholds for the butterfly but in recent times, they too have faced challenges that have led to the demise of populations.

The fragmentation of colonies has been identified as the most limiting factor on population size followed by a decline in the favoured plant host Kidney vetch (*Anthyllis vulneraria*).

Angus has suffered the same declines as the rest of the UK but still has pockets of populations of both species. Surveys have been carried out at locations along the coastline since the late 1970's in a generally sporadic manner. This has produced a wealth of data which has recently been revisited by Butterfly Conservation and the Tayside Biodiversity Partnership. Records of Small blue are numerous whilst Kidney vetch data is not so. Since 2012 both organisations have worked together to facilitate annual surveys of both species along the coastline. Historical survey materials and current Scottish Wildlife Trust and Scottish Natural Heritage survey data from Seaton Cliffs Local Nature Reserve and St Cyrus National Nature Reserve respectively, have been used as a starting point for where to focus survey effort. Investigation will hopefully lead to the discovery of extant populations.

Ecosystem Services & Ecosystem Scale Projects

Ecosystem Services

- Coastal protection from floods and storm surges
- · Climate regulation
- · Biomass storage
- Photosynthesis and oxygen production
- · Renewable energy
- Water quality regulation
- Seafood
- · Recreation and leisure
- · Health and wellbeing
- Tourism

Ecosystem Scale Projects

Angus Maritime Plant projects
– monitoring and restoring sea
pea and kidney vetch
populations.

Linking & Exploring Tayside's Coastal Wildlife Sites – Marine Life Angus website and Nature on Track.

Treating invasive coastal species – Himalayan balsam at Montrose Basin NNR, Japanese rose and gorse at Elliot links and intertidal species first defence monitoring.

Beach cleans along the length of the Angus coastline.

Angus coastal butterfly projects
– Small blue and Grayling
surveying, monitoring and
habitat enhancement projects.



Pressures

Erosion

Unless artificially constrained, seaward dune edges can be highly mobile. Few dune systems are in overall equilibrium and generally the Tayside coast demonstrates net erosion. Limited natural erosion helps regenerate dune systems, but the survival of the biological interest and the actual structure may be at risk if it increases excessively.

Development & Sea defences

Pressure, especially on the older dune systems, continues with further developments proposed leading to the destruction of this habitat. Many dune links are now golf courses where fertilisers, herbicides and irrigation are used for 'improving' the vegetation. Car and caravan parks widen access and increase trampling, fires and disturbance. Many dune systems are affected by coastal defence works that arrest the formation of new dune systems and affect the dynamism of dune systems. Offshore pressures have increased and the installation of oil and gas platforms, marine turbines and supporting cable infrastructure all have varying effects on the coastal and marine environments.

Climate change

Sea level rise and increased storms forecast as global climates change may cause foreshore steepening, thus allowing increased wave attack at the base of the dunes.

Marine invasive species may also find it easier to colonise new areas. Higher carbon dioxide levels in the atmosphere are making oceans

warmer and more acidic, affecting the health and distribution of species and species interactions.

Recreation

The coast and its sand dune systems offers easy access by local residents and visitors and provides opportunities to watch wildlife, pursue outdoor sports such as golf, or simply walk, contemplate and seek inspiration. However, such a major land use causes damage to vegetation, exposes the underlying sand to the wind and rain and results in the loss of vegetation and sand. Rehabilitation of such areas can be carried out, but it often takes years for the natural diversity to become reestablished. On our seas, pressures can come from water sports such as boating, jetskiing and irresponsible cetacean watching.

Grazing

Whilst continued grazing is necessary to maintain the grassland and to prevent scrub development, overgrazing can have damaging effects.
Undergrazing is more widespread, allowing vegetation to be invaded by coarse grasses and scrub.

Other pressures include: nutrient enrichment from farmland and waste effluent, marine pollution, bait digging, laying of cables and pipelines, the introduction of new or nonnative species, maintenance dredging, shipping accidents, beam trawlers and scallop dredgers, waste tipping.



Montrose Basin Tern Raft Project

A raft was designed and built in 2008 at Montrose Basin, the enclosed estuary of the River South Esk, intended to support breeding Arctic Terns in the area.

Locally, Arctic Terns had been known to breed on rooftops of businesses in Montrose town. 'Urban' terns developed an uneasy relationship with local businesses as their territorial behaviour included dive-bombing workers and customers entering the premises. The Scottish Wildlife Trust approached local company, Glaxo Smith Kline, seeking funding for a raft on the Local Nature Reserve intended to provide an alternative nest site for Arctic Terns. GSK provided £10,000 funding; a further £2,000 was received from SNH.

The raft aptly named 'Maid of Sterna Stuff' was installed on 5th June 2008 and moored in a subsidiary channel of the River South Esk meaning it floats on all tides to protect the nest site from land based predators. Though both Arctic and Common Terns prospected the nest site it was quickly established that only Common Terns were nesting there and in subsequent years, only Common Terns have approached the raft.

The nesting effort on the raft has fluctuated greatly since 2008 with 2011 being the most successful year to date with 150 hatchlings. In 2012 and 2013 breeding was attempted and eggs observed however nests were thought to have flooded during the heavy continuous rainfall experienced. Fledgling success varies year on year.

Coastal & Marine Actions Schedule

Key for timescale Short: 1-3 yrs **Medium:** 4-6 yrs **Long:** 7-10 yrs

Actions will be input into the UK Biodiversity Action System (UKBARS) where Lead Partners will be outlined

Maintaining & Improving Habitats Action breakdown Action Who takes the action **Timescale Kidney Vetch** 1 Restore maritime **Angus Council** Long Survey Kidney vetch along the Angus Coast plant species Scottish Natural Heritage annually (and inland where appropriate). numbers and genetic diversity Scotia Seeds Use fixed point photography at identified where possible, by sites to monitor plant number fluctuations. preventing decline, Tayside Biodiversity supplementary Partnership Carry out seed collection, growing on and planting and supplementary broadcast sowing and Landowners enhancing species planting at suitable sites. connectivity. **Dundee Botanic Gardens** Monitor land use regimes on identified sites encouraging favourable management Easthaven Together techniques. Community groups Sea Pea Project Identify historical or new sites for planting sea pea grown locally at Dundee Botanic gardens. Monitor replanting and plant colonisation. **Greater Yellow Rattle** Monitor coastal population and spread. Carry out site works to improve habitat for plant spread particularly at Easthaven SSSI. Support new projects which identify additional threatened species. 2 Promote the Ensure that TAYplan (Strategic Development Angus Council Long sustainable Plan), Angus Local Development Plan and Scottish Natural Heritage development of the the Angus Shoreline Management Plan 2 in partnership area Angus take into account the sustainable **Tayside Biodiversity** coastline through development of coastal units. Partnership increased policy Promote Integrated Coastal Zone integration. Tay Estuary Forum Management as a means of sustainably managing the coast in accordance with National Marine Plan. Annually produce updates for Public Bodies Duty reporting. Annually produce updates for Local Authority statutory biodiversity reporting against the 2020 Challenge.

Maintaining & Improving Habitats			
Action	Action breakdown	Who takes the action	Timescale
3 Endeavour to reduce the direct pressures on coastal and marine biodiversity by implementing litter reduction and beach clean projects enabling the enhancement of ecosystem health.	Identify all areas of the Angus coastline where regular beach cleans take place and facilitate coordination of new activity at sites of limited action. Identify new projects to tackle littering at problem sites in line with Scotland's Marine Litter Strategy. Raise awareness of microplastic-type pollution and the damage caused to marine and coastal environments and species by supporting projects such as the Great Nurdle Hunt and Beat the Microbead Campaign. Investigate the reduction of use of Chinese lanterns and organized balloon releases by awareness raising, supporting the "Don't Let Go" campaign and appropriate policy implementation.	Angus Council Scottish Natural Heritage Tayside Biodiversity Partnership Voluntary Action Angus Friends of the Earth Community groups Community Councils Marine Conservation Society Marine Life Angus FIDRA	Long
4 Support saltmarsh habitat enhancement and species and showcase best practice land management techniques.	Maintain species richness found within the different saltmarsh zones: upper, middle and lower, including transition saltmarsh habitats such as reedbed and swamp. Identify areas where grazing can be more intense to create a sward attractive to wintering and passage wildfowl and waders. Montrose Basin: Source funding to install and maintain fencing in the areas being encroached with juncus to secure grazing livestock.	Scottish Wildlife Trust River South Esk Catchment Partnership Angus Council Landowners and Land Managers	Long

Maintaining & Improving Habitats Action breakdown **Timescale** Action Who takes the action 5 Support sand dune Remove invasive plants such as gorse, **Angus Council** Long system restoration hawthorn, sycamore and rose species. Scottish Natural Heritage projects and species Explore options for fencing to protect management **Dundee Botanic Gardens** sensitive habitats from disturbance. programmes. **Tayside Biodiversity** Elliot Links SSSI – encourage better Partnership conditions for Sea pea (Lathyrus japonicus) reintroduction. Ministry of Defence Consider planting of Kidney vetch as part of **Angus County Golf** a wider Kidney vetch connectivity project. Association Promote and develop other demonstration Scottish Golf sites for the restoration of dune vegetation, particularly in areas which are experiencing human-induced pressures. Encourage additional conservation and enhancement measures that support the natural heritage importance of Barry Buddon, taking into consideration the MoD operations. Encourage golf course management polices and practice which take into consideration the flora and fauna of sand dune systems. Medium 6 Support and Identify and promote "cross-boundary" Scottish Environment opportunities, such as joining up path, encourage **Protection Agency** collaborative habitat and other network elements **Tayside Biodiversity** regional working for between local authorities, Biodiversity Partnership both green networks Partnerships and other geographically based and blue spaces (i.e. organisations. Scottish Natural Heritage watercourses, coasts Share and promote good practice to other and wetlands). **Angus Council** land users and in collaborative working between partners. Perth & Kinross Council Help co-ordinate regional scale projects, Cairngorms National surveys, etc. and advise on funding. Park Authority Encourage sustainable grazing on cliff and Forestry Commission slope SSSIs and other coastal grazing areas Scotland as appropriate. Scottish Government Work with a wide range of partners in Rural Payments & supporting integrated coastal management **Inspections Directorate** and marine planning. Tay Estuary Forum Act as an informal network to highlight Landowners and land projects being developed and create managers opportunities of scale and collaboration. North East Green Network

Surveying & Monitoring			
Action	Action breakdown	Who takes the action	Timescale
7 Investigate the effects of climate change on the movement of marine invasive intertidal species through regular surveying and monitoring.	Generate records of marine wildlife by facilitating intertidal Shore Thing biological surveys at sites around the Angus Coast. Raise awareness of marine species and conservation amongst the wider community.	Tayside Biodiversity Partnership Angus Council Scottish Wildlife Trust Marine Biological Association Marine Life Angus	Long
8 Investigate cetacean spatial and temporal distribution patterns in Angus waters.	Generate sightings records through targeted media such the Angus Cetacean Awareness Project and the website www.marinelifeangus.co.uk. Analyse sightings data submitted to website. Promote the availability of data and disseminate to relevant organisations.	Tayside Biodiversity Partnership Scottish Wildlife Trust Scottish Natural Heritage Marine Life Angus	Long
9 Support tern populations and encourage appropriate site management.	Review the Tayside Terns Information & Code of Practice leaflet; feature it on appropriate websites and create a poster for distribution. Review the existing nesting sites, including the tern raft at Montrose Basin and advise on additional safeguarding of the sites, if appropriate, e.g. signage to reduce human and dog disturbance. Review inappropriate nesting sites such as industrial site roof-tops and advise on management.	Tayside Biodiversity Partnership Scottish Wildlife Trust Scottish Natural Heritage Marine Life Angus	Long
10 Support projects and surveys that provide an understanding of coastal bird ecology.	Undertake annual Beached Bird Survey along the Angus coast.	Royal Society for the Protection of Birds	Long
11 Survey and monitor threatened coastal butterfly populations.	Collect annual survey data for Small blue sightings along the Angus coast and inland where appropriate. Verify data regularly to develop a management and monitoring strategy. Investigate the potential improvement of connectivity of populations along the coast and experiment with broadcast Kidney vetch seed and planting of established potgrown Kidney vetch plants at specified sites (with the landowners' permission). Expand the project to inland Angus, in particular potential disused railway sites and quarries.	Butterfly Conservation Scotland Tayside Biodiversity Partnership Angus Council Angus County Golf Association Landowners and land managers Community groups Dundee Naturalist's Society	Long

Surveying & Monitoring			
Action	Action breakdown	Who takes the action	Timescale
	Grayling Collect annual survey data for grayling sightings along the Angus coast. Verify data regularly to develop a management and monitoring strategy.		
12 Survey and monitor breeding Eider populations.	Montrose Basin LNR Collect bi-annual survey data for breeding Eider populations on the Montrose Basin Local Nature Reserve. Analyse collected data bi-annually and investigate any changes in trends. Investigate the possibility of improving the habitat for the breeding population including the introduction of artificial shelters. Humanely control predators at the breeding site including foxes, mink and crows to a sustainable level. Maintain a minimum level of human disturbance at the breeding site.	Scottish Wildlife Trust Angus Council	Long
13 Develop fixed point photography investigation to explore habitat and species change.	Monitor Kidney vetch density at chosen sites to understand the variability of plant numbers annually. Identify partners using fixed point photography to monitor erosion at coastal sites.	Tayside Biodiversity Partnership Angus Council Tay Estuary Forum Landowners and land managers University of Dundee	Long
14 Support a Tay Reedbed Invertebrates Study.	Set up a citizen science survey project to study the wide invertebrate interest in the Tay reedbeds.	Dundee Naturalists Society Buglife Scotland	Long
15 Build on a baseline study of Sparling, also known as European Smelt (Osmerus eperlanus) undertaken in 2009 to identify and map spawning sites on the Tay.	Identify further survey effort required, particularly looking at population density and spawning. Also, investigate potential impact of climate change. Source funding for further survey work. Consider conservation targets for the species to ensure the survival of the population on the Tay in to the future. Potentially source further funding to support conservation targets.	Tay Salmon Fisheries Company Scottish Natural Heritage Landowners and land managers	Long
16 Support and promote intertidal species monitoring projects.	Encourage community participation in citizen science projects along the Tayside coast e.g. Capturing our Coast.	Tayside Biodiversity Partnership Scottish Association for Marine Science Marine Life Angus Community groups	Medium

Education & Awareness Raising			
Action	Action breakdown	Who takes the action	Timescale
17 Increase awareness of cetaceans in Angus waters and facilitate community participation in data recording.	Promote the website www.marinelifeangus.co.uk and the Angus Cetacean Awareness Project, a dedicated project where community sightings of cetaceans in Angus waters can be submitted to a central database. Focus on awareness raising through local and national press, specialist publications and events. Develop web and social media presence focussing on the media used by local communities and tourists e.g. VisitScotland and Angus Ahead websites.	Marine Life Angus Tayside Biodiversity Partnership Community groups Seawatch Foundaton	Long
18 Raise awareness of endangered coastal butterflies and encourage community participation in conservation.	Small Blue Provide survey training for recorders and volunteers for Small blue and other coastal butterflies where appropriate. Produce and reprint postcards and posters to raise awareness of the ongoing project. Expand the project to include the North East Biodiversity Partnership area - especially St Cyrus NNR. Annually prepare and circulate updates on survey work, publicity and volunteers.	Butterfly Conservation Scotland Tayside Biodiversity Partnership Angus Council Landowners and land managers Community groups	Long
19 Encourage school age participation in projects relating to marine and coastal issues.	Facilitate a "Keep the Sea Free of Debris!" Art Contest as a regular competition for schools to tie into curriculum projects highlighting the impacts of marine debris and how to minimise it. Raise marine debris awareness year-round by developing a Marine Debris Calendar using contestant entries. Promote Scottish Wildlife Trust educational activities at Montrose Basin Wildlife Centre. Encourage reporting to surveying schemes such as the Angus Cetacean Awareness Project, Small Blue project, Shore Thing, Marine Conservation Society projects, WeBS etc.	Tayside Biodiversity Partnership Angus Council Scottish Wildlife Trust Butterfly Conservation Scotland Marine Conservation Society Marine Life Angus	Long

Education & Awareness Raising

Action	Action breakdown	Who takes the action	Timescale
20 Promote local recorders, clubs and biodiversity open days.	Maintain an up to date database of local recorders and specialist clubs. Utilise the skills of local recorders and clubs to target specific projects including local BioBlitzes. Encourage local open days and promote to the partnerships extended network. Research the possibility of setting up a Seashore Project based on the success of the Highland Seashore project - raising awareness of our marine and seashore wildlife. Investigate the potential to set up an Angus Coastal Festival with a wide range of partners to raise awareness of coastal issues and encourage citizen science surveys.	Tayside Biodiversity Partnership Tayside Recorders' Forum Scottish Wildlife Trust Butterfly Conservation Scotland Scottish Natural Heritage Marine Life Angus Marine Conservation Society	Medium
21 Encourage responsible interactions when encountering marine and coastal wildlife minimising disturbance potential.	Promote The Scottish Marine Wildlife Watching Code through social media and publications. Investigate the Dolphin Space Programme being rolled out to Tayside boat trip providers.	Tayside Biodiversity Partnership Angus Council Scottish Natural Heritage Marine Conservation Society Taymara	Long
22 Raise awareness of marine and coastal issues to Local Authorities, Community Planning Partners and the wider stakeholder network.	Report twice yearly to community planning thematic partnerships on project contributions to local and national Single Outcome Agreement objectives. Regularly provide biodiversity seminars and workshops to local authority staff on relevant legislation and good practice. Use social media and targeted websites to promote marine and coastal issues to as wide an audience as possible.	Tayside Biodiversity Partnership Angus Council Perth & Kinross Council Marine Conservation Society	Long
23 East Scotland Sea Eagle Education Project.	Engage schools in East Scotland with the story of the Sea Eagle reintroduction through a series of tailored outreach programmes.	Royal Society for the Protection of Birds	Short

Invasive Non-Native Species

Action	Action breakdown	Who takes the action	Timescale
24 Endeavour to reduce the direct pressures on coastal and marine biodiversity and ecosystem health from invasive non-native species.	Facilitate the production of a map of the coast highlighting key areas threatened by invasive non-native species. Limit the spread of the invasive non-native species such as Himalayan balsam, Giant hogweed and American Mink at coastal sites e.g. Montrose basin LNR. Raise awareness of invasive non-native species and demonstrate the impact that can be achieved by labour intensive control. Facilitate work party days with volunteer input to carry out control. Showcase good practice control effort e.g. controlled re-growth at SWT Montrose Basin control project.	Angus Council Scottish Wildlife Trust Tayside Biodiversity Partnership Voluntary Action Angus Scottish Natural Heritage River South Esk Catchment Partnership Scottish Mink Initiative Esk Rivers and Fisheries Trust	Long