

*A Descriptive Poem on the Silvery Tay*

*"Beautiful silvery Tay,  
With your landscapes so lovely and gay  
Along each side of your waters, to Perth all the way;  
No other river in the world has got scenery more fine,  
Only I am told the beautiful Rhine. . . ."*

*William Topaz McGonagall, 1830-1902*

# Foreword

This Management Plan marks the culmination of some eight to nine years of work by the Tay Estuary Forum Local Coastal Partnership, directed towards integrated management of the Tay Estuary and adjacent coastal waters. The plan, which began life as the TEF's embryonic 'Theme Framework' in 2000, has been developed through close partnership working in consultation with the key stakeholders and local organisations around the estuary and the coasts of Angus and Fife, northwards to the mouth of the River North Esk and southwards to Fife Ness. It describes the broad agreement that exists amongst the numerous and varied organisations and interest groups, as to the key issues that need to be addressed or resolved in the region and the measures that might appropriately be adopted to advance them.

The over-arching aim is to secure and promote for future generations the wise and sustainable use of the Tay Estuary and adjacent coastal waters. This aim can be furthered only by the resolution of any conflict between user groups and by ensuring, as well as possible, that the area's, economic, environmental and societal resources are responsibly managed and used in ways that are as mutually compatible as possible. Although the plan is voluntary and non-statutory, its recommendations will be advanced through the enthusiasm, remit and (in some cases) the existing statutory powers of the TEF partners. It is our intention to revise the plan about every five years: your continued input, comments and feedback will be essential ingredients for its vitality.

**Thanks to all who contributed to the formation of this Plan.**



Professor Rob Duck  
Chair: Tay Estuary Forum  
April 2009



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Angus Council, Catchment Tay Ltd, Dundee City Council, Fife Council, Forth Ports PLC, Perth and Kinross Council, Scottish Natural Heritage

Front Cover Photo: Snow on Fowler and Beacon Rocks, Tay Estuary: Laura Booth TEF.

Opposite Photo: Tay Sandbanks and Rear Cover Photo: Kingoodie Sunset: Pete Boardman FBIIP.

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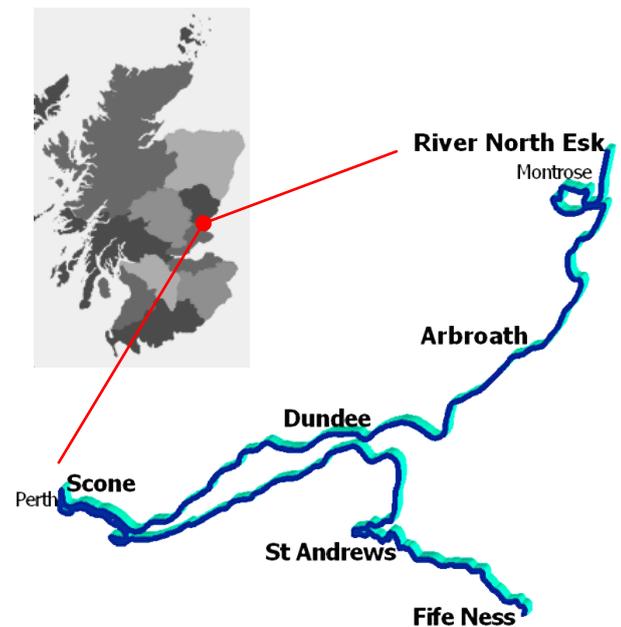
# 1. Introduction: The Forum

The Tay Estuary Forum (TEF) is a voluntary and non-statutory Local Coastal Partnership established in 1997, dedicated to promoting the wise and sustainable use of the Tay Estuary and adjacent coastline.

## 1.1 The Tay Estuary Forum Region

The Forum region extends from the tidal limit of the Firth of Tay at Scone, to Fife Ness and to the River North Esk on the open coastline; it extends to a distance of at least 5 km offshore. The area is governed by four local authorities (Angus, Dundee, Fife and Perth & Kinross), and encompasses a diverse range of environments, including three estuaries: the Tay, Eden and Montrose Basin.

The region is rich in biodiversity with nationally and internationally important designated species and habitats. Home to over half a million people, there are inevitable pressures along this stretch of coast where the interactions between people, their environment and economic demands are constantly evolving.



## 1.2 Structure of the Forum

The work of the Forum is guided by a Steering Group, which represents the main regulatory bodies, and is managed and administered by a Secretariat based at the University of Dundee. The Steering Group currently comprises:

Angus, Dundee, Fife, Perth & Kinross Councils, SEPA, Scottish Natural Heritage, RSPB, the Port of Dundee Ltd (Forth Ports PLC), Montrose Port Authority, Crown Estate, Catchment Tay Ltd, Tay Salmon Fisheries Ltd and the Universities of Abertay, Dundee and St Andrews.

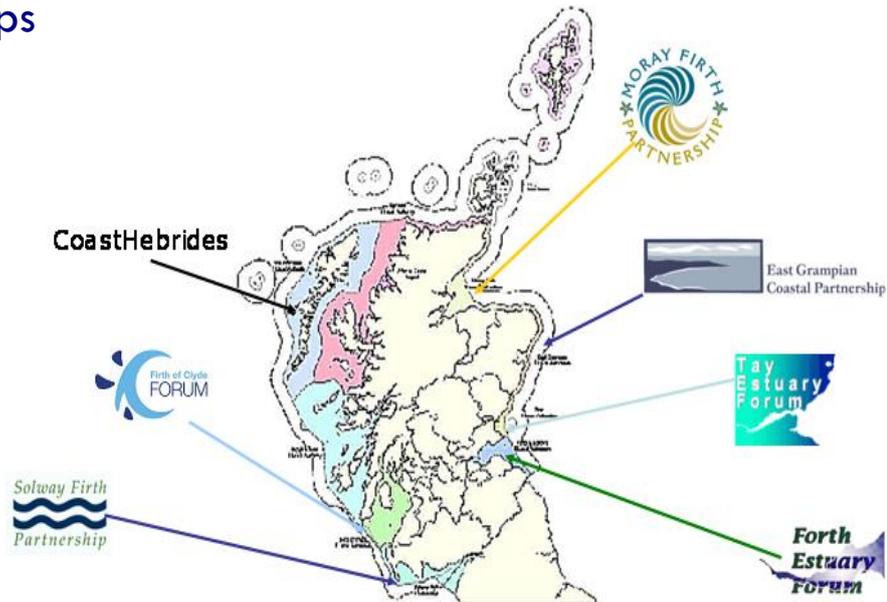


## 1.3 Local Coastal Partnerships

The TEF is part of a wider network of seven Scottish Coastal Fora and other coastal partnerships throughout the UK: sharing a common aim to deliver Integrated Coastal Zone Management at the local level.

Local Coastal Partnerships were first established in the early 1990s after the Earth Summit in Rio (1992) and the UK's Biodiversity Action Plan commitment to develop integrated management strategies for a number of estuaries and firths. In 1993, SNH's "Focus on Firths Initiative" was launched, with the TEF forming in 1997.

The Scottish Local Coastal Partnerships are connected by the Scottish Coastal Forum (SCF), which provides an opportunity for the partnerships to communicate and collaborate and puts the work of the Fora into a national context. The SCF also advises Scottish Government in the development of coastal policies for Scotland.



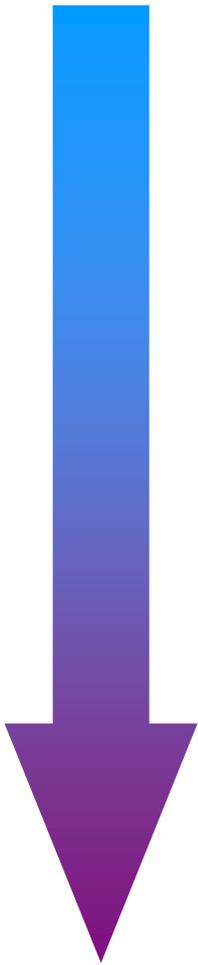
## 1.4 TEF Role

The Forum's role is to maintain a diverse and inclusive representation of people who work, live and play within the TEF region and of those who regulate and manage it. The Forum seeks to ensure committed participation throughout its work. Progress is communicated to the entire Forum body via quarterly newsletters, a website, an annual conference, field trips and focus meetings.

## 1.5 TEF Membership

Forum membership is free and open to all. There are currently 500 members on the Mailing List representing regulatory bodies, landowners, conservation bodies, industry, community groups, recreational users, individuals and many more.

## 1.6 TEF Timeline



TEF Established	1997
Working Group Discussions at AGM	1999
Theme Framework Produced	2000
Topic Group discussions of key issues	2002/3
Theme Framework Reviewed	2004
Stakeholder Interviews, Consultation	2007
Conference Discussions, Questionnaires	2008
<b>Management Plan</b>	<b>2009</b>
Year 1 Actions	2010
Developmental and Responsive Actions	2011
Developmental and Responsive Actions	2012
Longer-term Actions	2013
Longer term Actions	2014

## 1.7 Tay Estuary Forum Guiding Principles

These principles have been developed after consideration of consultation responses. They are generic to each of the three strategies (Social, Environmental and Economic) within the Management Plan and should be evident in all aspects of Forum work.

The Tay Estuary Forum will:

- 1) Provide an accessible, inclusive and neutral platform for discussion of estuarine and coastal issues
- 2) Promote partnership working through communication
- 3) Produce clear messages for all through education and awareness-raising
- 4) Act as an impartial mediator between coastal stakeholders resolving potential conflicts where appropriate
- 5) Engage with local community and encourage voluntary participation
- 6) Produce strategies with concise, achievable aims, regularly updating and reviewing the implementation of these strategies

# 2. The Management Plan

## 2.1 Overall Objective

The aim of this Management Plan is to promote and guide integrated sustainable management of the Tay Estuary and surrounding coast. It will take into account current and proposed local management initiatives and activities, identify overlaps in policy where partnership working may be explored, attempt to bridge gaps between strategies, and aim to bring national and European legislation into a local focus.

## 2.2 Current and Future Wider Policy Context

### European Legislation

Marine Strategy Directive  
Habitats and Species Directive  
Flooding Directive  
Urban Waste Water Treatment Directive  
Water Framework Directive  
Bathing Water Quality Directive

### National Legislation

UK Marine Bill  
Scottish Marine Bill  
UK Climate Change Bill  
Scottish Climate Change Bill  
Nature Conservation (Scotland) Act  
Wildlife & Countryside Act (as amended)  
Water Environment and Water Services Act  
Planning Legislation  
Flood Risk Management (Scotland) Bill  
UK Biodiversity Action Plan  
Conservation (Natural Habitats &c.) Regulations (including Regulation 33 advice)

### Regional Initiatives

Local Plans: Angus, Dundee, Perth & Kinross and Fife Councils  
Dundee and Angus Structure Plan  
Perth & Kinross Structure Plan  
Core Path Plans  
Community Plans  
Countryside Access Strategies  
Local Biodiversity Action Plans: Tayside and Fife  
Tay Area River Basin Management Plan (in progress)

### Local, Non-Statutory Current and Proposed Management Initiatives

Broughty Ferry Vision Project  
River South Esk Catchment Management Plan (in progress)  
Angus Shoreline Management Plan (to be reviewed 09)  
Fife Shoreline Management Plan (review in progress)  
Montrose Basin Local Nature Reserve Management Plan  
Inner Tay Estuary Local Nature Reserve Management Plan  
Eden Estuary Local Nature Reserve Management Plan  
Montrose Port, Arbroath Harbour, Angus, Port of Dundee and Perth and Kinross Oil Spill Pollution Plans  
SNH Management Plans/ statements for SSSI's  
Tentsmuir National Nature Reserve- Reserve Plan

### **Marine Bill**

With the UK and Scottish Marine Bills and the creation of Marine Scotland in April 2009, there are major legislative changes developing within marine and coastal management. The Scottish Marine Bill aims to provide a stable framework and a more integrated, streamlined approach to marine management based on a strong scientific foundation. Marine Planning will be the tool by which a balance can be reached between the many different uses of the marine environment, allowing both conservation of natural assets and sustainable economic growth. One of Marine Scotland's major policy tasks will be to engage with coastal stakeholders and communities, which is where Local Coastal Partnerships such as the TEF can play a vital communicative role.

Please see the TEF website for more details on the Marine Bill and Marine Scotland.

## 2.3 Sustainability

Sustainability can be defined as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (Brundtland Report 1987). This plan aims to balance social, environmental and economic issues in the TEF region into one sustainable strategy.

The plan is based on the principles of Integrated Coastal Zone Management. It relies on cooperation, collaboration and communication between people addressing use and management of the coastal zone.



## 2.4 2009-2014

Over the next five years, this non-statutory plan will help inform policy-making for the natural and built environment in the TEF region. The Forum has drawn on its experiences and achievements since its creation in 1997 and aims to use these in setting and achieving realistic future targets, as listed in the Action Plan. Through this, it is hoped that potential conflicts can be managed and resolved more efficiently whilst adapting to future social, environmental and economic change in the TEF region.

## 2.5 Plan Structure

The TEF Theme Framework (developed in 2000 and reviewed in 2004) is based on the three aspects of sustainability: Society, Environment and Economy. This plan follows the same structure; the three Strategies collectively encompassing all spheres of use and management in the TEF region. Within the three Strategies, fourteen Priorities have been established with their associated Objectives listed. These Objectives have been distilled into a working Action Plan which will undergo annual review.

Current Issues in the TEF region have been identified during the consultation process and listed (in no order of hierarchy) within each Strategy. The list is not exhaustive but aims to capture the major issues in the area today. Although it is inevitable that some issues relate to more than one Strategy and that some of the divisions are controversial, classification is necessary in order to produce an effective, clear and organised plan. The TEF aims to address these issues over the next five years, primarily through education and partnership working.

# 3. A. SOCIAL STRATEGY

The sustainable future of the TEF region depends on engagement of local communities and all users of the coastal zone. The area hosts an estimated population of over 400,000 and it is essential that people are aware of the importance of the region's natural heritage, the physical processes that operate here and potential threats or conflicts that may arise from various ongoing uses and activities.

## Social Issues in the TEF region raised during consultation:

- Conflict between water users, such as jet skiers and other motorised personal water craft adversely affecting anglers, wildlife, bathers and beach users
- Conflict between beach users not adhering to appropriate codes of practice, such as kite flying or other beach sports
- Vandalism at coastal sites
- Public access disagreements with landowners
- Irresponsible use of beaches such as litter, dog fouling and noise from parties
- Lack of understanding of coastal processes

### A1: Community Engagement

Ensure communities within the TEF region and beyond can enjoy and help to improve this area, now and in the future

1. Appreciate and promote the values that communities place on their local environment.
2. Encourage communities to identify and develop links with their natural and cultural heritage.
3. Foster a sense of responsibility and ownership in local communities with regard to their natural environment.

### A2: Partnership

Operate as an accomplished partnership, promoting the wise and sustainable use of the TEF coastal region by effective communication and networking

1. Ensure the TEF network covers all relevant interests with regular review of membership and its level of involvement.
2. Encourage those with statutory roles in the TEF region to maintain effective communication with others.
3. Engage with other Coastal Fora initiatives around Scotland, the UK and further afield.

### A3: Education and Awareness

Ensure the Tay Estuary and adjacent coastline are aspects of education at all levels to encourage understanding of estuarine and coastal issues

1. Promote the TEF region as an educational tool at all levels (such as local history, archeology, physical and human geography and sciences).
2. Promote information-sharing events, field trips or conferences.
3. Support establishment and development of courses for adult education on topics such as coastal processes, social issues and environmental awareness related to the TEF region.
4. Promote public awareness and understanding of Integrated Coastal Zone Management.
5. Collaborate with other environmental awareness and activity programs particularly with respect to local initiatives and interest groups.
6. Encourage production of information packs, leaflets, guides and a quarterly newsletter so as to raise awareness within communities of the TEF region.
7. Encourage clear and consistent information.

## A4: Information

Increase understanding and knowledge of the TEF region through dissemination of data and information, use of media and technology and the support of coordinated research and monitoring

1. Maintain and update the online TEF information database. This requires substantial review and multidisciplinary collation of information relating to the estuary, coastal hinterland and catchments.
2. Understand what information is needed, how to analyse it and how to store it.
3. Identify a clear approach to gathering information, with detailed knowledge of its subject, format and structure.
4. Ensure that information flows both ways. The Forum should act as a communicator, presenting, distributing and also receiving information.
5. Encourage public participation in information exchange, acknowledge that the public represents a valuable information resource and establish outreach programmes to transfer such information.
6. Ease access to information and ensure that information bases are well publicised on the TEF website.
7. The TEF website should provide a focus for the Forum and facilitate information exchange between Forum members.
8. Encourage local libraries, community councils, information centres and museums to disseminate information on TEF issues.



Festive Greetings!  
As 2008 draws to a close, work on the TEF Management Plan continues- A final version will be completed in early 2009 and the finished plan will be launched at the:  
**TEF 2009 CONFERENCE THURSDAY 30<sup>TH</sup> APRIL 2009 at WEST PARK CENTRE DUNDEE.**  
(Look out for booking forms and conference programme in the Spring 09 newsletter)  
The plan will also be made available to download on the TEF Website.  
The conference will cover topics such as River Basin Planning, Biodiversity, Marine Litter and Sea Level Rise. We hope you can join us!

Until then, have a Merry Christmas and Best wishes for the New Year!  
Laura (Project Officer)

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1. TEF Update
2. Field trip: Newburgh Waterfront
3. Adopt a Christmas Turtle!
4. Carnoustie Sea Front
5. Guardbridge Paper Mill Closure
6. SNIFFER Flood Risk Conference
7. Green Blue Volunteering

### 1: TEF UPDATE

- The last Steering Group meeting was held on 10<sup>th</sup> October 2008. The Project Officer as well as Steering Group members have been collating information to the Plan and the Project Officer continues to meet with stakeholders regarding input to the plan. A Management Plan Review meeting was held on 10<sup>th</sup> December to discuss the 2<sup>nd</sup> draft.
- Next Steering Group meeting will be held in January.

To join the mailing list of the TEF or to put forward your views, articles or pictures  
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## A5: Research

Promote the use of the TEF region within research projects at all academic levels

1. Establish the TEF as a research portal; promoting projects as well as communicating research findings.
2. Encourage collaboration of relevant interest groups and organisations in designing coordinated research programmes.
3. Ensure TEF database is regularly updated with current and future research projects and their findings.
4. Acknowledge the value of technology for monitoring and research related to the TEF region.

## A6: Publicity

Encourage positive promotion of the TEF region and the work of the Tay Estuary Forum

1. Raise the profile of the TEF using all available media to publicise its work at local, regional and national scales.
2. Ensure that the aims and objectives projected by the Forum promote sustainability.
3. Encourage the development of educational TV and radio programmes relating to the TEF region.

### Examples of Current Social Action in TEF area:

- Broughty Ferry Environment Project
- Newburgh Community Trust
- Broughty Ferry Vision (Case Study 1)
- Tay Regeneration Project (Case Study 2)
- Broughty Ferry Sea Shore Festival
- West Sands Liaison Group, St Andrews
- Fife Outdoor Access Festival
- Fife Rural Partnership
- Natural Connections Fife
- Fife Coastal Path
- Angus Path Network

## CASE STUDY 1: TOWARDS A COLLECTIVE VISION FOR BROUGHTHY FERRY

In March 2006 local residents were invited to express their views and aspirations for the use of open spaces within Broughthy Ferry. In order to further engage with the community, the Council invited a small group of appropriately qualified members of the local community to analyse comments received and to produce a report for consultation purposes. It was concluded that a “brand” be developed for the town, linked with a collective vision for the waterfront/esplanade area for the next 20 years.

In April 2008 Dundee City Council adopted the initiative with the Local Community Planning Partnership (including members of the public and representatives of local stakeholder groups) endorsing the "Vision for Broughthy Ferry" in the Local Community Plan for the Broughthy Ferry (Dundee East) area 2008/2011. The Vision will be progressed in partnership between the local council and other vehicles such as the Beach Management Group, the Ferry Local Community Plan and the Dundee Local Plan.

The aims of the study are to:

- Take forward the notion of a distinctive brand for Broughthy Ferry, which would benefit the town as a retail, visitor and tourist destination as well as raising community confidence and awareness.
- Assist in the implementation of the Council’s commitment to release the potential of the Esplanade area and to build on the achievement of Blue Flag status for the beach.
- Assist in the implementation of the Council’s commitment to develop the area at and around Castle Green as an attractive area for leisure and recreation.
- Relate the regeneration of these areas to the activities already underway in the Broughthy Ferry Central Area and extend the approach along the length of the frontage onto the Tay as far as Margaret Crescent.
- Take up the Council’s commitment to work in partnership with local residents in the public interest.



Broughthy Ferry Castle and Esplanade from the air: John Gray

## CASE STUDY 2: TAY REGENERATION PROJECT

Ancient historical routes around the rivers Tay and Earn traditionally linked local communities with key sites of interest, both work based and recreational. As one of the key river based sources of local employment, Tay Salmon Fisheries Ltd were able to utilise local traditional skills to enable them to sustain the Fishery. The maintenance of these routes was also part of habitat and foreshore management plans which were essential for both land and water based operations. However, when the Fishery closed in 1996, local communities lost a key employer. The river banks very quickly became overgrown and in many cases inaccessible and the salmon bothies fell into a state of disrepair. The Fishery was then bought over in 1997 and a rescue plan was developed focusing on:



- Safeguarding traditional skills.
- Offering local employment.
- Bringing back into use historical land and water based routes traditionally used to manage the banks of the river.
- Returning life to the piers linking up the north and south banks.
- Introducing a water taxi transportation project, the income of which would be used to manage and maintain key historical assets along the river for future generations to enjoy.

This plan evolved into the Tay Regeneration Project (TRP), which is a partnership project between Fife Council, Perth & Kinross Council and Tay Salmon Fisheries Ltd. The overall 'vision' of which is to assist in the regeneration of communities around the Firth of Tay and the River Earn. As such a Steering Group has been set up to drive forward and coordinate activities until establishment of the Tay & Earn Trust, the main remit of which will be to:

- Target wider funding streams thus drawing in grants that the partners would otherwise be unable to source, such as funding from private charitable Trusts, Lottery etc.
- Manage key assets required for effective delivery of the overall project, which will be secured via a management/ lease agreement between Tay Salmon Fisheries Ltd and the Tay & Earn Trust.

To date, a portfolio of thirteen subprojects has been proposed within the overall Tay Regeneration Project Masterplan, all of which have been designed as stand alone projects (Fig 1). However, over the next two to three years the main emphasis will be on the delivery of the Tay Water Taxis Transportation Project. The overall aim is to link communities around the Tay, provide an alternative green transport route, provide local employment and generate an income to secure the long term sustainability of the Project.



Proposed view of River Steward Station

Text and Images: Patricia Galfskiy, TRP



## B. ENVIRONMENTAL STRATEGY

The Tay Estuary is recognised as one of the least developed and least polluted estuaries in Europe and is a benchmark for sustainability. The demands placed upon the river and estuary to support wildlife, leisure and tourism may seem to contrast with those of the human population, but that impression underestimates the capability of the natural environment to accommodate the effects of human habitation and development. Overall, current environmental and economic demands are balanced and have created or sustain high levels of amenity and water quality.



Inner Tay reeds, muds and sandflats at low tide:  
Ian Montgomery, Perth & Kinross Council

The TEF provides information and promotes understanding of the inter-related factors applicable to the TEF region. An integral part is to appreciate that the Tay Estuary is already an area of exceptional environmental quality, supporting many internationally important and diverse habitats and species, the product of the interaction between natural and human processes.

There are three major estuaries within the TEF region; the Inner Tay (12265 ha), Montrose Basin (842 ha) and the Eden Estuary in Fife (1047 ha). The Tay drains the largest area of any river in Scotland and has the highest freshwater inflow of any estuary in Britain. Montrose Basin, at the mouth of the River South Esk, is one of the finest examples of an enclosed estuarine basin in the UK.

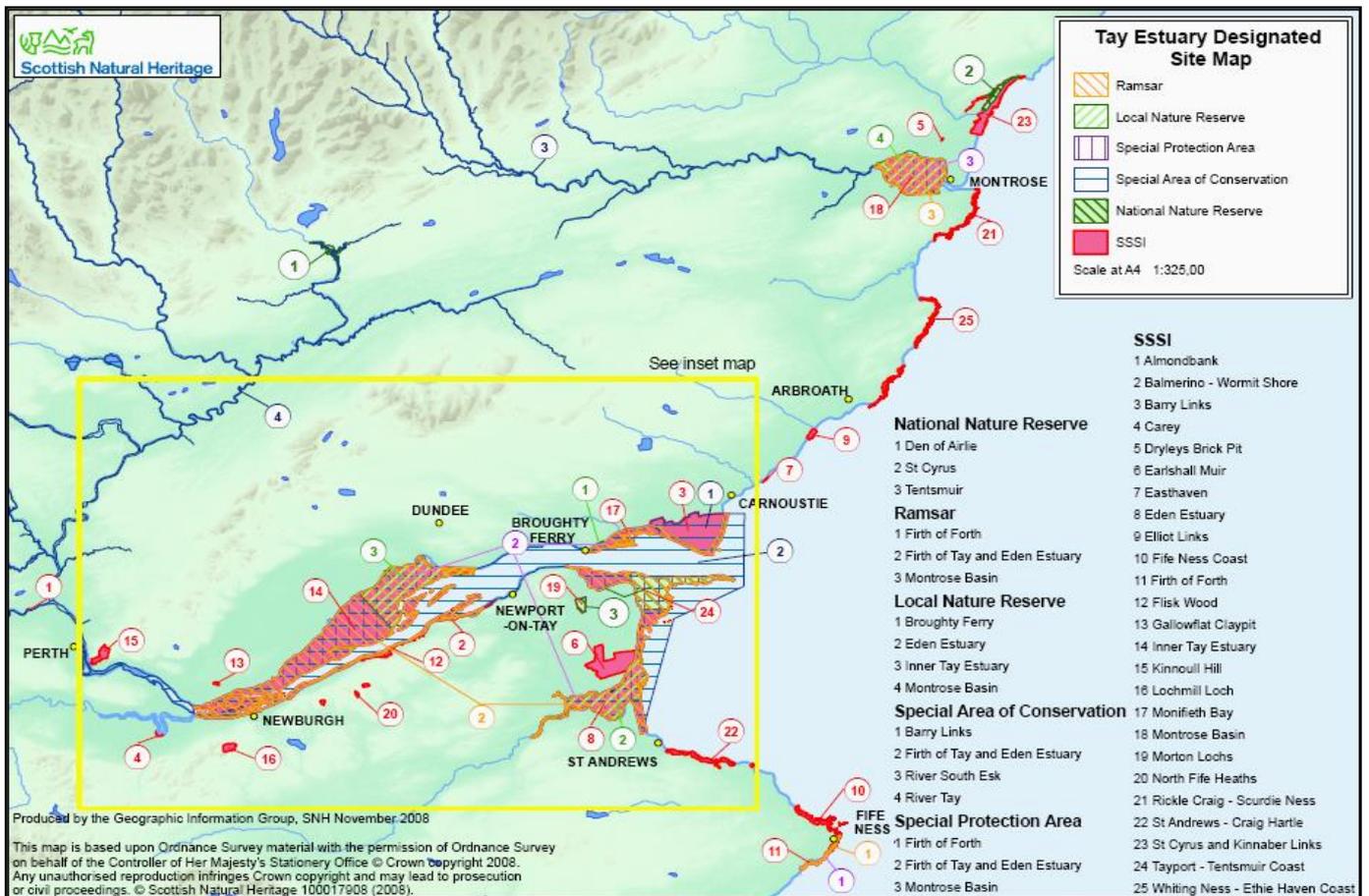
Tayside has the largest continuous stand of reed in Britain (410 ha) and Tentsmuir Point and Barry Buddon support extensive sand dune systems. The Rivers Tay and South Esk are renowned as some of the UK's most important spawning sites for Atlantic Salmon and hold large populations of the endangered Freshwater Pearl Mussel. There is an internationally important Common Seal population in the Tay Estuary and the Otter appears to be making a successful comeback to Tayside and Montrose Basin.

Montrose Basin and the Tay and Eden Estuaries support nationally and internationally important populations of wildfowl and waders with approximately 10% of the world population of Pink-footed Geese wintering in the TEF region. This is recognised by their designation as Special Protection Areas (SPA) under the European Birds Directive and as Ramsar Sites under the Ramsar Convention (Maps 1 and 2).

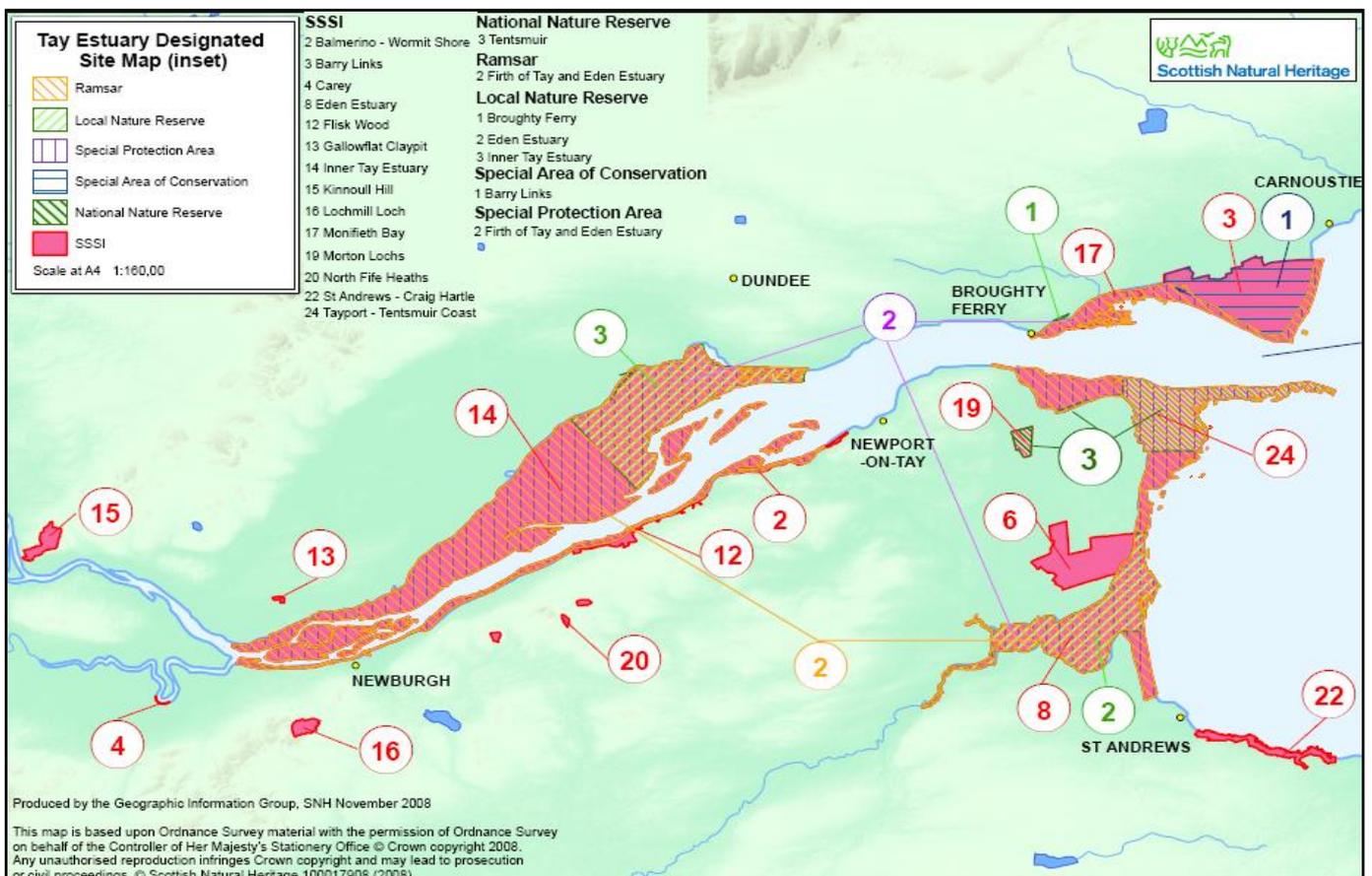
### Examples of Current Environmental Action in TEF area:

- Broughty Ferry Environmental Partnership
- RSPB Scotland re-introduction of Sea Eagles
- Local Biodiversity Partnership Initiatives
- Tayside Geodiversity Geo- trails
- RSPB Scotland Reed Management
- Friends of the Earth Tayside
- Tayside Recyclers
- Dundee Partnership for the Environment
- Fife Coast and Countryside Trust (FCCT)
- Tentsmuir Interpretation Plan
- Montrose Golf Course realignment
- Port Oil Spill Pollution Plans
- Green Clean Team, FCCT
- Montrose Swan Management Working Group

Map 1: Designated Sites within TEF Region



Map 2: Inset of Tay Estuary



All public bodies in Scotland have a duty to avoid deterioration and work towards improving the condition of these designated sites. Many issues can be addressed by working together with land managers to identify and implement appropriate management measures. These measures can be influenced by local, national or international obligations and strategies. One such example is the Tay River Basin Management Plan which has identified priorities for action for the Tayside and North Fife area (Case Study 3).

#### **Potential Offshore Special Protection Area**

Scottish Government is considering its responsibilities in the marine environment under the Birds Directive. A number of locations around the Scottish coast are well known for supporting aggregations of non-breeding waterbirds. The Joint Nature Conservation Committee (JNCC) and Scottish Natural Heritage (SNH) are currently surveying these areas, one of which is St Andrews Bay and the Angus coast, referred to as "Tay Bay" in the JNCC Report no. 401 (2007). Collected data will be used to advise Scottish Government on the relative importance of specific locations whereupon final decisions will be made on designating SPA status.

### **CASE STUDY 3: WATER FRAMEWORK DIRECTIVE AND RIVER BASIN PLANNING**

The European Water Framework Directive (WFD) was introduced in 2000. It aims to improve the condition and integrate the management of European waters. The main goal of the WFD is for all rivers, lochs, estuaries and coastal waters to be of good ecological and chemical status by 2015. Groundwaters should also achieve good status as regards water quality and quantity. In some cases it would be disproportionately costly to achieve good status by 2015, so later deadlines may be adopted.

Water quality must be maintained and deterioration avoided in all water bodies. The Water Environment and Water Service Act (Scotland) translated the WFD into Scottish legislation in 2003. SEPA has started a new planning process, supported by a draft River Basin Management Plan for the Scotland River Basin District (RBD). Eight local area management plans have been produced to focus and expand the process within different geographical areas.

#### **TAY AREA MANAGEMENT PLAN**

The Tay Area Management Plan sets out the ways in which SEPA seeks to protect high quality waters and where necessary, make improvements over the next six years (2009-2015). Map 3 shows an overview of the waters in the Tay area.

#### **CURRENT WATERBODY STATUS WITHIN THE TEF REGION**

For River Basin Planning, the water environment in the Tay area has been divided into 354 water bodies (rivers, lochs, estuaries, coastal waters and groundwater). Many are in good condition, with almost 50% achieving an overall status of good or high (Map 4). By 2015 SEPA anticipates that almost 60% of the water bodies in the Tay area will reach high or good ecological status or potential.

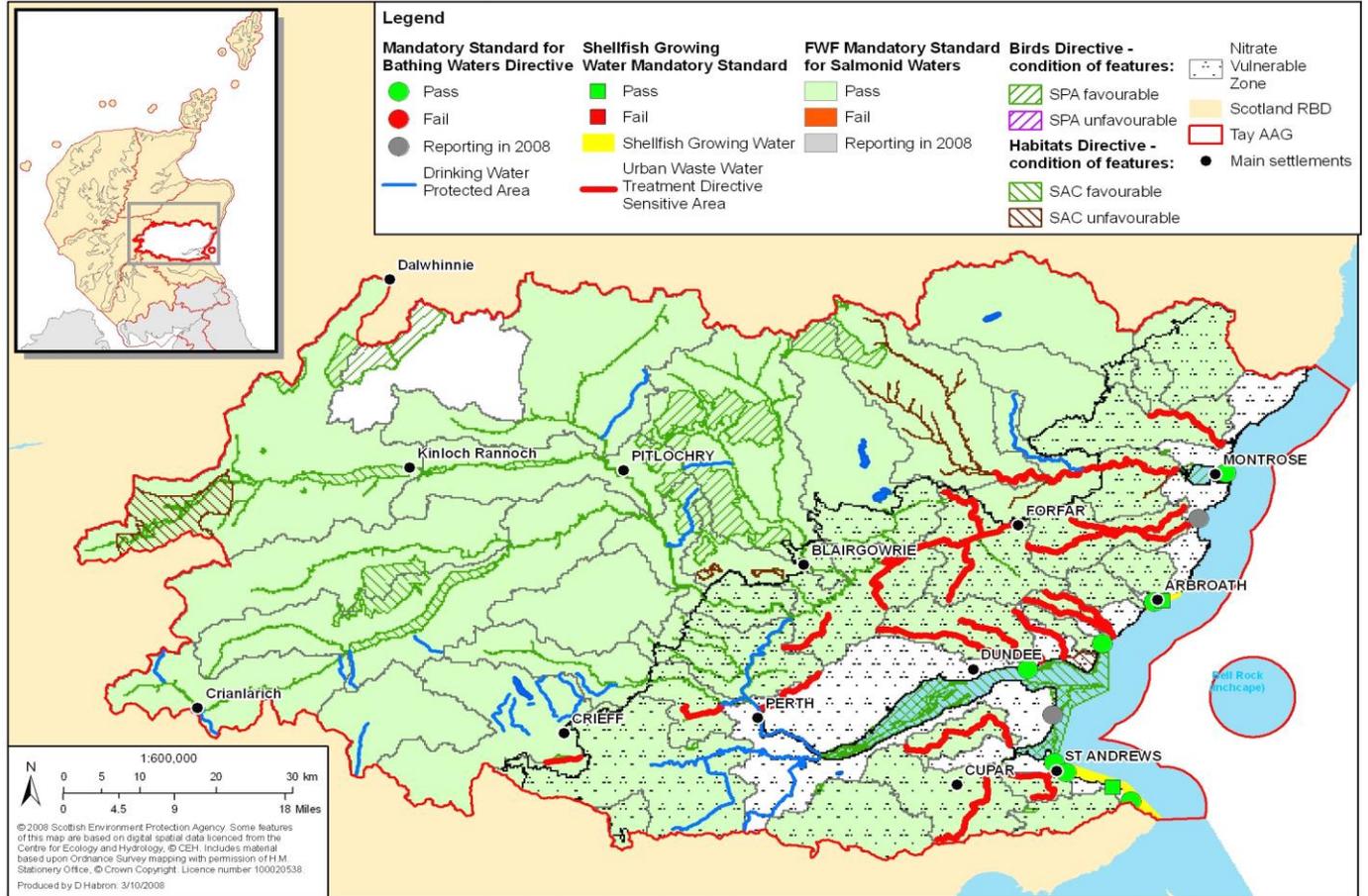
#### **KEY WATER QUALITY ISSUES IN THE TAY**

- Nutrient enrichment in our rivers and lochs and high levels of nitrates in groundwater.
- Changes to the physical habitat of rivers and burns (including artificial barriers to fish passage).
- Changes to river flow and water levels in rivers and groundwater.

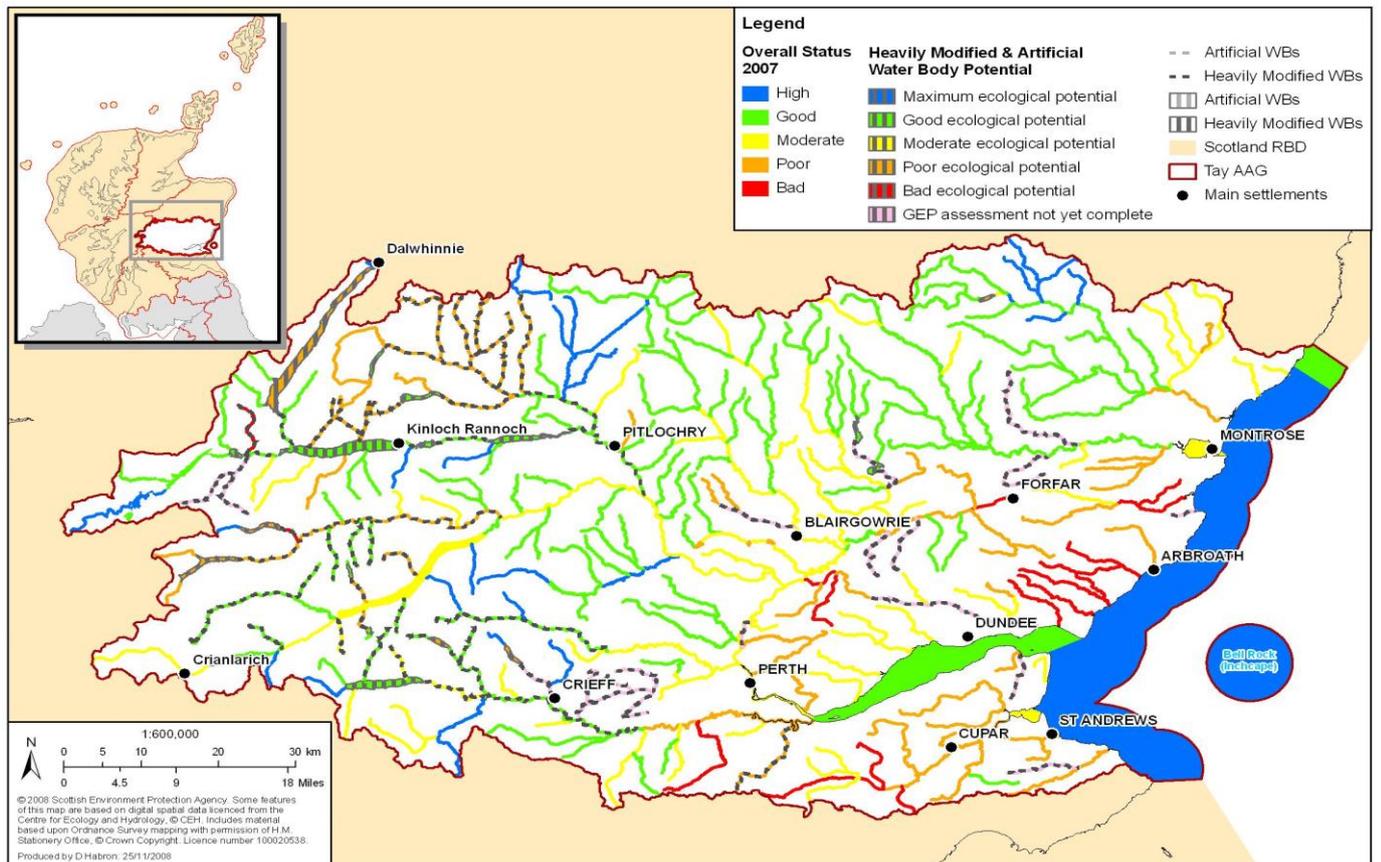
#### **TAY AREA ADVISORY GROUP**

The Tay Area Management Plan has been developed with the advice and guidance of the Tay Area Advisory Group, which has members from statutory agencies, the agricultural sector, conservation organisations, the forestry sector, local fisheries boards and the Tay Estuary Forum. The plan focuses on local issues and highlights the opportunities for partnership working to ensure improvements to our water quality. It is therefore relevant to all those who manage or use the water environment.

Map 3: An Overview of the Waters in the Tay Area.



Map 4: Status of Waters in the Tay Area.



## Environmental Issues in the TEF Region raised during consultation:

- Bait digging at foreshore areas
- Increased access impacting on wildlife and sensitive or designated sites
- Litter from both terrestrial and marine sources
- Managing threat of coastal erosion whilst trying to preserve natural processes
- Adverse environmental impacts of some coastal protection measures
- Invasive species, such as Japanese Knotweed
- Coastal path network has potential to disrupt estuarine birds
- Development pressure affecting designated sites
- Quad bike damage to dunes
- Mechanical beach cleaning's detrimental effect on coastal habitat
- Seal predation on salmon
- Declining biodiversity
- Irresponsible wildlife watching

### B1: Habitats and Wildlife

Ensure conservation of habitats and wildlife within the TEF region and promote their international, national and regional importance

1. Raise awareness of the legal framework and status of conservation regimes and designated sites within the TEF region so as to influence future planning and development practices.
2. Increase awareness and understanding of the ecological importance of the TEF region, particularly to local communities and visitors.
3. Assess existing and potential access locations and forms of recreation in terms of impact on habitats and wildlife. Identify possible adjustments to these to ensure continued protection of habitats and species.
4. Promote understanding and monitoring of species in order to make informed decisions relating to their management.
5. Promote conservation and management of habitats and wildlife in line with legislation.

### B2: Physical Environment

Promote the varied nature of the coastal landscape within the TEF region and increase knowledge about the physical processes that act on it

1. Recognise and maintain the diverse nature of coastal environments.
2. Help to improve understanding and monitoring of coastal processes and the influence of existing or proposed coastal zone developments and defences.

3. Improve understanding and recognition of places at risk of coastal flooding, erosion and wind-blown sand.
4. Increase knowledge of coastal processes to aid future planning and development.
5. Recognise the importance of long-term records such as tide, wave and wind regimes, particularly in establishing an environmental database.
6. Examine effects of future changes in climate and sea level, with reference to coastal regimes and inter-tidal, foreshore and high water environments.

### B3: Environmental Quality

Advocate improvement of environmental quality in the coastal zone, through the support of initiatives to monitor the environment, to review, update and enforce regulations, and to reduce pollution by developing new techniques in waste treatment

#### B3a: Water Quality and Pollution

1. Promote continued coordination between water authorities and regulatory bodies, particularly with respect to relevant water directives.
2. Encourage and support improvements in waste and effluent treatment and reduction technology.
3. Support adequate, regular monitoring of estuarine and coastal water quality and encourage dissemination of information, such as beach awards.
4. Increase understanding about the impact of agricultural run-off inputs to nutrients in estuarine and coastal waters.
5. Encourage research into algal species, support regular surveys and assess change over time. The toxic properties of specific types of algae and their effect on shellfish populations require greater understanding.

### B3b: Litter

1. Promote monitoring of litter to identify the sources and inform further regulation.
2. Encourage participation in existing national and regional clean-up schemes aimed at raising awareness and reducing litter, such as Marine Conservation Society's *Beachwatch* and Keep Scotland Beautiful's *Spring Clean* campaigns.
3. Help to identify coastal sites that suffer from fly tipping and alert authorities to the problem.

### B4: Cultural Heritage

Protect and enhance cultural heritage, in all its diverse forms within the TEF region.

1. Promote the inventory of the TEF region's cultural heritage.
2. Acknowledge local community as a valuable source of information relating to the region's cultural heritage.
3. Support communities seeking to establish local interpretation, awareness and educational projects.
4. Support assessment of archaeological and historic assets to sustain conservation and protection regimes.
5. Assist in developing strategies for the conservation and protection of historical and archaeological sites and features.



Seiga Reed Harvester: Laura Booth TEF

### CASE STUDY 4: TAY REED MANAGEMENT

The tidal reed bed on the north shore of the Inner Tay Estuary covers approximately 35 km of the bank around the Errol area. At around 410 ha this is the largest continuous reed bed in the UK and makes up more than 15% of the national total of this valuable habitat. The reed bed is of significant conservation importance (reflected by its inclusion as a feature in the SSSI designation of the Inner Tay Estuary) and supports important populations of wetland birds such as Water Rail, Sedge Warbler and Reed Bunting as well as Marsh Harrier and Bearded Tit - all reed bed specialists.

It is believed that monks started the reed planting around 500 years ago and that stone breakwaters were built in the 1800s by prisoners of the Napoleonic Wars in order to protect the mudflats from erosion. Commercial harvesting of the reed started in 1974, with small areas cut every two years. The area suitable for harvesting was soon increased by rolling and burning of the old thick reed, and 40% to 60% of the reed bed was cut annually between December and April.

The initial reaction to such large scale harvesting was that this was a drastic change, believed to be detrimental to the habitat. There are few studies of the area prior to management but the appearance of Marsh Harrier and Bearded Tit as breeding species suggest that management is a positive influence. More recently, small sections of the reed bed have been managed specifically for conservation under management agreements between landowners and Scottish Natural Heritage (SNH).

In 2005 RSPB Scotland took on the specialised machinery and expertise of the former owner of the Tay Reed Company so that management of the reed bed could continue. RSPB Scotland now has management agreements with various landowners, covering approximately half the reed bed area. Harvesting continues in these areas to maintain a favourable habitat for breeding birds. Studies have shown that mature stands of reed and young, fresh growth are both required for many species to breed successfully i.e. Bearded Tits build their nests in the older reed but are frequently seen feeding on insects over the new season's growth.

Since its initial involvement, RSPB Scotland has trialed different harvesting patterns to ascertain the most suitable for breeding birds. The period of harvesting has been reduced in recent years to take place between early January and the end of March to minimise disturbance to breeding species. The reed is still cut using the Seiga (opposite) - a specialised machine with a low ground pressure, able to drive over areas of soft mud into which a walking person would sink. The reciprocating cutter on the front of the machine cuts the reed about 15cm above ground level and the stems are collected together into bundles which are then placed into large bales. The bundles are then 'cleaned' by a machine that combs out short or broken stems and re-cuts the end of the bundle to leave a clean base, as seen on traditionally- thatched roofs.

Reed harvested commercially by the Tay Reed Company has been sold throughout the UK and abroad. RSPB Scotland are involved with maintaining reed sales to traditional thatching outlets; their main objective being conservation of reed-related skills and employment whilst integrating these with conservation management.

RSPB Scotland.

# C. ECONOMIC STRATEGY

Diversity in economic activities is important to the continued growth and success of the TEF region. Economic development plays a key role in the area's welfare and should be supported as an essential aspect of "wise and sustainable use". Through coordinated, integrated and sustainable planning and development, the region will continue to succeed whilst still maintaining the natural and cultural heritage, the source of the region's success. Private sector development and investment is driven by the prevailing economic climate (global, continental, national and regional) and the interaction between these, public sector support (or otherwise) and the companies and agencies based locally that have the drive, intellectual capital, energy and resources to make things happen.

## Economic Issues in the TEF region raised during consultation:

- Coordination of investment is often difficult
- Areas of high unemployment and low wage rates
- Cost of coastal and fluvial flood prevention
- Potential future renewable energy generation
- Development versus value of landscape and seascape, habitats and species
- Derelict areas requiring treatment

## C1: Industry and Commerce

Ensure the future of industry and commerce within the TEF region is economically and environmentally sustainable

### C1a: Economic Development

1. Encourage economic development plans to be based on the sustainable approach.
2. Encourage industries to take pride in and responsibility for the quality of their local environment. Recognise and support those industries that set, meet and improve on high environmental standards and that promote the concepts of environmental awareness and sustainability
3. Promote the integration of industries throughout the region within the local communities.
4. Support and promote development and regeneration within derelict or "brown field" areas.
5. Engage with the local planning process, aiming to discourage over-development of the coastal strip.
6. Support better understanding of business activity along the shoreline of the estuary and adjacent coast.
7. Maintain awareness of investment initiatives as indicators of the economic health of the TEF region.

### Examples of Current Economic Action in TEF area:

- Angus Community Planning Partnership's Economic Development Strategy 2008
- Scottish Rural Development Programme
- Dundee Waterfront Development (Case Study 5)
- Tay Regeneration Project
- Arbroath Seafest
- Arbroath Seafront Spectacular
- Carnoustie Seafront Regeneration

### C1b: Transport

1. Encourage collaboration between the TEF region's ports and promote coordination of shipping, particularly in terms of the use of the TEF region's waters for port-to-port transport.
2. Encourage schemes promoting water based transport within the Tay Estuary and adjacent coastal waters.

## CASE STUDY 5: DUNDEE WATERFRONT MASTERPLAN 2001-2031

The Development Masterplan for Dundee Waterfront includes certain key components:

- Extension of the city centre down to the Waterfront.
- Creation of a new grid iron street pattern based on the historical routes to the north.
- Improved provision of facilities for walking, cycling & buses.
- Reduction of the existing environmental effect of cars & parking.
- Removal and replacement of some of the Tay Road Bridge vehicle ramps.
- Creation of a pair of east/west tree lined boulevards to replace the existing inner ring road.
- Formation of attractive sites for a variety of new mixed use developments.
- Creation of a major new civic space and re-opened dock stretching from the Caird Hall to the River Tay.
- Provision of a new rail station and arrival space at the western edge of the area.



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The Masterplan aims to achieve a good balance between buildings and open space. It is right that sizeable new public spaces are re-incorporated into the area, but these will only function properly if they are framed and enclosed by quality new buildings of appropriate scale and height. There will also be a healthy balance between hard and soft landscaping in these spaces so that they can accommodate a variety of different uses.

Although a grid iron pattern of streets is proposed for the Waterfront, a considerable amount of visual variety has been sought by making sure that grids respond to the characteristics of the area. The overall effect is that no one street or space will be identical to any other, thus encouraging diversity and local identity while also forming viable development sites.

A number of new landmark features are proposed at prominent locations which will both bring added visual interest to the area and create a series of dramatic views and vistas through and within the Waterfront. The cumulative effect will create a real sense of dramatic arrival for travelers entering the city from all directions and modes of transport.

The Masterplan's objective is to tame the negative environmental effects that the existing roads and ramps have on the area, but at the same time to allow for necessary vehicular access and through traffic.



The proposed way of doing this will be to create a pair of matched east/west boulevards which will carry external traffic through the area and channel the bridge traffic in and out of the City Centre. The bridge ramps themselves will be reconstructed to create a more compact and direct connection with the new road pattern.

Within this basic pattern, smaller access streets will be formed to service the area and its associated new uses. Together this hierarchy of roads will create a much more understandable street pattern for residents and visitors alike.

Pedestrian movement will be facilitated by the provision of light controlled crossing points at each junction in order to cater for the key desire lines from the city centre to the Waterfront.

A dedicated public transport corridor has been retained along the line of the existing route along Dock Street. This will ensure that easy bus access is maintained within the city centre while also easily serving the new Central Waterfront developments.

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Proposed "Grid Iron" Street Pattern

## C2: Recreation and Tourism

Promote recreation and tourism within the TEF region through recognition of the region's heritage and resources; with consideration for the natural environment and local community needs

1. Acknowledge the economic importance of tourism within the TEF region.
2. Help develop a tourism promotion strategy to encourage the use of the TEF region as a tourist destination incorporating existing localised schemes in a sustainable manner.
3. Explore potential effects of increased tourism in the future.
4. Acknowledge regional features that could attract the special interest tourist markets, such as conservation and ecotourism, maritime heritage and archaeology.
5. Encourage collaboration between local tourist boards.
6. Encourage sustainable development of tourist attractions, acknowledging impacts on the natural environment, regional heritage and local communities.
7. Promote responsible recreation through initiatives to improve rubbish disposal and signage defining specific routes for cycles and motorised vehicles in areas threatened by erosion.
8. Work with partners in linking pathways by designating specific routes for walkers and cyclists. Relate the routes to the region's heritage.
9. Encourage sensitive improvement and upgrading of public access routes within the region, as well as the availability of rubbish bins and public toilets.
10. Provide information on access agreements for specific regions where access is presently limited by land-use practices such as at Buddon Ness firing range.
11. Provide awareness programmes relating to hazards and safety issues within the coastal and estuarine environment.

## C3: Farming and Fishing

Support promotion of economically and environmentally sustainable farming and fishing within the TEF region, whilst continuing to encourage protection and enhancement of the environment and the economic growth of rural communities

### C3a: Agriculture

1. Encourage sustainable rural development.
2. Promote integration and coordination of traditional farming practices with nature conservation.
3. Raise awareness and encourage understanding within farming communities of the impact of agricultural discharges and pollution on catchment, estuarine and coastal ecosystems.

### C3b: Fisheries and Commercial Fishing

1. Encourage sustainable fisheries development.
2. Help promote diversification for commercial fishing within the region.
3. Maintain awareness of the work of the South East Scotland Inshore Fisheries Group and contribute where appropriate.

## C4: Renewable Energy

Recognise the TEF region's specific potential for renewable energy technologies, such as hydropower, offshore wind and tidal power and ensure schemes will not adversely affect the natural environment

1. Promote research into the use of tidal energy in the Tay Estuary as a source of renewable energy and economic opportunity and identify the capacity of the TEF region to accommodate this.
2. Raise awareness of and encourage partnership working to achieve this.
3. Promote Dundee City as Scotland's Renewable Energy capital (Case Study 6).

## CASE STUDY 6: TAYSIDE REDI RENEWABLE ENERGY DEVELOPMENT INITIATIVE

### Concept:

To create, through the strategic partnership of the City, Community and Port, a long term sustainable industry that will encourage inward investment, research and development and position Dundee as a world leading centre for Renewable Energy.

### Vision:

By using the 25 hectare quayside development zone within the Port of Dundee to attract major international renewable energy manufacturers to set up and operate a state of the art manufacturing facility. Once achieved, this will act as an anchor on which to build a new industry by developing the supply chain and research and development capabilities within the wider region.



Aerial View of Port of Dundee: Forth Ports PLC.

### Competitive Advantage:

The Port of Dundee is strategically well placed to capture a significant percentage of the required work needed to build the 25 GW generating potential of Offshore Wind Power. This is required to meet the U.K. Governments' targets of achieving 15% of our energy requirements from renewable energy sources and will also help the Scottish Government achieve their goal of having 50% of our energy from renewable sources by 2020. The Port of Dundee is the closest port to the majority of identified Offshore Wind Development zones off the East Coast of Scotland.

### Partnership:

The Tayside Renewable Energy Development Initiative project is driven by a partnership comprising Dundee City Council, Scottish Enterprise and Port of Dundee. It will collaborate and draw on strengths from both the academic and wider business community in the region.

Text and Images: Forth Ports PLC.



# 4. Implementation and Review

## Action Plan 2009-2014

This Action Plan forms the basis of the Tay Estuary Forum's work for the next five years: 2009-2014. The Objectives laid out in the three Strategies (Social, Environmental and Economic) have been distilled into the following Action Plan. Some Actions are already established, such as the TEF annual conference, quarterly newsletter, focus events and occasional papers. Success depends on involvement and cooperation of partner organisations and through securing funds. All efforts will be made to explore new and existing avenues of funding by the TEF Steering Group.

The following prioritisation of Actions has been developed to reflect this:



Actions and Issues will be reviewed annually. This is intended to be a flexible, working Action Plan which can evolve to reflect changing issues within the Management Plan area.

For a full reference list please visit the TEF website: <http://www.dundee.ac.uk/crsem/TEF/>

### Acronyms

<b>BMG</b>	Beach Management Groups
<b>DCC</b>	Dundee City Council
<b>FCCT</b>	Fife Coast and Countryside Trust
<b>JNCC</b>	Joint Nature Conservation Committee
<b>KSB</b>	Keep Scotland Beautiful
<b>LA</b>	Local Authorities (Angus, Dundee, Fife, Perth and Kinross).
<b>LBAP</b>	Local Biodiversity Partnerships
<b>LCP</b>	Local Coastal Partnerships
<b>LNR</b>	Local Nature Reserve
<b>MCS</b>	Marine Conservation Society
<b>NECPG</b>	North East Coastal Protection Group
<b>NFU</b>	National Farmers Union
<b>PO</b>	Project Officer (TEF)
<b>RBD</b>	River Basin District
<b>RBMP</b>	River Basin Management Plans
<b>SAC</b>	Scottish Agricultural College
<b>SC</b>	Sailing Clubs
<b>SE</b>	Scottish Enterprise
<b>SEPA</b>	Scottish Environmental Protection Agency
<b>SESIFG</b>	South East Scotland Inshore Fisheries Group
<b>SNH</b>	Scottish Natural Heritage
<b>SR</b>	Scottish Renewables
<b>TEF</b>	Tay Estuary Forum
<b>TG</b>	Tayside Geodiversity
<b>TRP</b>	Tay Regeneration Trust
<b>UoD</b>	University of Dundee
<b>WFD</b>	Water Framework Directive

Strategy	Priority	Action	Key Partners
<b>S  O  C  I  A  L</b>	<b>Community Engagement</b>	<b>SOC a: Regular attendance of TEF at local community festivals and events</b>	PO, TEF
		<b>SOC b: Hold information events and field trips on specific estuarine and coastal issues</b>	TEF
	<b>Partnership</b>	<b>SOC c: Allow Annual Conference to be a platform for raising awareness of current local initiatives</b>	TEF
		<b>SOC d: Work with other Coastal Fora in collaborative projects</b>	PO, TEF, LCPs
		<b>SOC e: Liaise regularly with local community and environmental groups, such as Beach Management Groups</b>	PO, TEF
		<b>SOC f: Provide regular updates on the Marine Bill and other legislative changes via website and newsletter</b>	PO, TEF
		<b>SOC g: Produce TEF Newsletter quarterly</b>	PO, TEF
	<b>Education and Awareness</b>	<b>SOC h: Develop educational aids/ activity packs to accompany school visits</b>	TEF, LCPs
		<b>SOC i: Establish links between TEF website to other relevant sites of interest</b>	PO, TEF
		<b>SOC j: Promote responsible beach use and encourage communication between different user groups</b>	TEF, BMGs
	<b>Information</b>	<b>SOC k: Update the existing information base on TEF website as a portal to a wide range of estuarine and coastal issues</b>	TEF
		<b>SOC l: Assist with producing informational leaflets on various natural and cultural aspects of the local environment</b>	TEF
		<b>SOC m: Produce information leaflet for recreational water craft users of the Tay</b>	TEF, Port Authorities, LAs, SCs, SNH
	<b>Research</b>	<b>SOC n: Develop links with local academic institutions, encouraging student research projects</b>	PO, TEF, Academic Institutions
	<b>Publicity</b>	<b>SOC o: Produce new promotional leaflet on the TEF region and the work of the Forum</b>	TEF
		<b>SOC p: Explore all media opportunities to promote the Tay coastal region, such as at the annual conference</b>	TEF

<b>E N V I R O N M E N T</b>	<b>Habitats and Wildlife</b>	<b>ENV a: Promote and support the delivery of local Biodiversity Partnership projects and events.</b>	TEF, LBAPs
		<b>ENV b: Help to raise awareness of protected, threatened and locally important sites and species.</b>	TEF, SNH, LNRs, LBAPs
		<b>ENV c: Promote responsible wildlife watching via newsletter, website and at workshops.</b>	TEF, SNH, BMGs
	<b>Physical Environment</b>	<b>ENV d: Support local Geodiversity groups in promoting local geological heritage with links to TEF website</b>	PO, TEF, TG
		<b>ENV e: Participate in developing flood defence strategy that allows a balance between allowing natural processes to operate in the area and coastal protection.</b>	TEF, LAs
		<b>ENV f: Engage with shoreline management plan development process and regularly attend coastal protection group meetings</b>	TEF, LAs, NECPG
		<b>ENV g: Increase public awareness of dynamic coastal systems</b>	TEF
	<b>Environmental Quality and Pollution</b>	<b>ENV h: Identify and help alleviate sources of marine and terrestrial litter within the TEF region by education and coordinating voluntary coastal clean-ups</b>	TEF, KSB, MCS, LCPs, BMGs
		<b>ENV i: Attend and contribute to SEPA's River Basin Planning Area Advisory Group meetings, helping to promote the RBMP process</b>	TEF, SEPA
		<b>ENV j: Disseminate useful information to public regarding water quality issues, bathing water status etc. via website</b>	TEF
		<b>ENV k: Carry out a Vandalism survey identifying hot spots within the TEF region: explore links with local police</b>	TEF, Tayside, Fife Police
		<b>ENV l: Promote responsible personal watercraft use</b>	TEF, LA's
	<b>Cultural Heritage</b>	<b>ENV m: Assist with outreach project on estuary history</b>	TEF, Universities
		<b>ENV n: Support potential Victoria and Albert Museum move to Dundee</b>	TEF

<b>E C O N O M I C</b>	<b>Industry and Commerce</b>	<b>ECON a: Support better understanding of business activity along the shoreline of the estuary and adjacent coast via seminar or research study</b>	TEF, Local Businesses
		<b>ECON b: Occasional Paper on Tay water quality and the costs involved in maintaining sewage treatment.</b>	Catchment Tay Ltd
		<b>ECON c: Engage with the appropriate authorities in the Strategic and Local Development Plan process</b>	TEF, LAs, Local Developers
		<b>ECON d: Recommend Local Authorities to request developers to include interpretational material of the Tay Estuary and coast where appropriate.</b>	TEF, Local Developers LAs
		<b>ECON e: Publicise and encourage water based transport initiatives on the Tay and adjacent coastal waters</b>	TEF, Port Authorities, LAs
	<b>Recreation and Tourism</b>	<b>ECON f: Contribute towards access, recreation and tourism strategies for the Tay estuary and adjacent coastline</b>	TEF, SNH, Local Tourist Boards, LAs
		<b>ECON g: Contribute towards the development of interpretation strategies to promote the importance of Tay estuary and its environment.</b>	TEF, SNH, LAs, local tourist boards
	<b>Farming and Fishing</b>	<b>ECON h: Increase awareness of issues and perceptions relating to nutrient run-off and diffuse pollution</b>	TEF, NFU SEPA, SAC, SNH
		<b>ECON i: Increase awareness for opportunities for diversification within the fisheries sector</b>	TEF, SESIFG
		<b>ECON j: Seek representation on the South East Scotland Inshore Fisheries Group</b>	PO, TEF
	<b>Renewable Energy</b>	<b>ECON k: Host a seminar to explore the potential of water based renewable energy options</b>	TEF, SR
		<b>ECON l: Promote Dundee City as Scotland's Renewable Energy Capital</b>	Port Authorities, DCC, UoD, SE