

Severn Tidings

Working in partnership for the future of the Severn Estuary

www.severnestuary.net

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Welcome!



Dr Rhoda Ballinger
Severn Estuary
Partnership
Management Group

Welcome to the summer 2014 edition of Severn Tidings – the Severn Estuary Partnership's newsletter

which brings together news from around the Estuary and from the Partnership's supporters. We are delighted to showcase a wide range of articles in this edition, including the Severn Bore, sustaining eel stocks, the Estuary's role in WWI and the latest information on a variety of energy generation schemes. The issue also includes regular features and updates relating to the work of the Partnership, Estuary groups and our funding partners.

The Severn Estuary is dynamic and diverse with huge value to the economy, environment and society. The Severn Estuary Partnership is always busy promoting sustainable management of the Severn Estuary, and over the past year this role has taken on many forms. This has included facilitating communication between stakeholders at Joint Advisory Committee (JAC) meetings, acting as a coordinating body by working closely with and providing secretariat services to many Estuary wide groups, assisting our partners and stakeholders with project work, and promoting and publicising the Estuary through events such as the Severn Estuary Forum.

The Severn Estuary Partnership is also working very closely with Government to develop policies for the management of our marine area covering matters including Marine Planning, Marine Protected Areas, Coastal Access and the Marine Strategy Framework Directive.

As you can see it has been a busy year for the development of Marine Policy with SEP playing a vital role uniting stakeholders and facilitating communication. This would not be possible without the dedicated support of our partners so I would like to take this opportunity to thank you for your continued support of the Severn Estuary Partnership. If you have suggestions for articles that could be included in future editions of Severn Tidings, or would like to sponsor a more specialised edition, please get in touch.



SEP staff from left to right: Emma Waddington, Shelley Vince, Emma Evans and Gwilym Owen

Working in Partnership

The past year has been a busy one for development of government policies focusing on the marine and coastal sector. This looks set to continue for the foreseeable future as increasing demand for resources puts sustainable development at centre stage. As policies develop, the Severn Estuary Partnership continues to play an important role in the management of the Severn Estuary, keeping you abreast of changes and ensuring that your views are represented.

The Partnership is pleased to introduce several new members of staff. Shelley Vince became the new SEP and ASERA officer in February and is working to raise the profile and develop the work of the SEP, providing support to various pan-estuary groups as well as completing the ASERA Recreation Study of land and water-based recreation for the Severn Estuary European Marine Site. In July, SEP welcomed Emma Evans and Emma Waddington. Both graduated this year from Cardiff University with a MEd in Marine Geoscience. Emma Evans is assisting with organising the Severn Estuary Forum and is also assisting with stakeholder communication, helping with the research and distributing of both e-news and Severn Tidings. Emma Waddington is reviewing and updating the State of the Severn Estuary (SOSER) webpages on various topics including the Water Framework Directive, coastal erosion and flooding, and tourism.

The Severn Estuary Partnership is excited to announce the launch of their 'Estuary' web which went live on the Partnership website on 31 March 2014: <http://www.severn-estuary.net/sep/estuary.html> With 13 updated sections from the State of the Severn Estuary Report (2011), these web pages provide users with easily accessible, accurate and up-to-date information on a wide range of themes from ports and shipping to water quality. If you want to know how many tonnes of sand and gravel are landed each year around the Estuary or you just want to explore aspects of the archaeology of the area, the new SEP pages are for you! SEP, with the help of our partners, is currently reviewing and updating most of the theme pages including aggregate dredging, bathing waters and freshwater inputs. This annual review should be completed and the website updated by the end of September 2014. If you want to contribute new information or ideas for the 'Estuary' web please get in touch at severn@cardiff.ac.uk.

On 21st May the Severn Estuary Partnership held its Joint Estuaries Day in Cardiff. This brought together stakeholders from a range of estuary groups. The day included a Joint Advisory Committee meeting and a fascinating presentation from the Environment Agency on the 2014 storms. I would like to thank all those who attended and made it such a successful and thought-provoking day.

The partnership hosted a successful annual Severn Estuary Forum in Gloucester on 17th October 2013 which covered a number of diverse topics, including the upper estuary and renewable energy possibilities. Don't forget, this year's Forum will be held in Cardiff on 16th September and will focus on 'Our Estuary: Challenges and Opportunities'. This promises

to be an exciting and engaging event dealing with climate change, estuary planning, energy generation and local issues. Further details regarding the event can be found on page 12 and on our website <http://www.severn-estuary.net/sep/forum.html>

Engaging with stakeholders and keeping informed of Estuary developments is, as always, keeping us busy! The Partnership continues to work closely with government and government departments such as Natural Resources Wales and Natural England to input into the formation of estuary related policies and plans. As part of this close liaison, the Partnership is currently working directly with the Welsh Government as a member of the Wales Marine Strategy Advisory Group where, through collaborative working and co-production, we are providing effective and meaningful engagement into programmes including Marine Planning and Marine Protected Areas. There is currently no news on when the Marine Management Organisation (MMO) will begin Marine Planning for the South West region but we are pleased to have the MMO speaking at the Severn Estuary Forum on 16th September 2014 to provide insight into their approach.

Key priorities for SEP over the coming year include refreshing the Strategy for the Severn Estuary, updating of the Partnership's Strategic Business Plan, developing the SEP website and communications, and collaborating with various estuary stakeholders on a range of projects. Good progress has already been made with developing SEP's communications including our new look monthly e-news. If you aren't already receiving it please sign up on our website to stay up to date on the latest Partnership and Estuary news, policy updates, consultations and upcoming events. If you have any information or news that you think should be included in our e-news please get in touch at severn@cardiff.ac.uk.

If you would like to stay up to date with the work of Partnership and guide its work, become a member. Membership provides access to a broad range of statutory, non-statutory, industrial and recreational user groups, and delivers a strategic estuary-wide view on issues, policies and proposals for action. Further details about becoming a member can be found on our website: <http://www.severn-estuary.net/sep/partnership/membership.html>

I hope you enjoy this issue of Severn Tidings and I look forward to welcoming you to the 2014 Severn Estuary Forum in Cardiff on 16th September.

Shelley Vince
Severn Estuary Partnership Officer

News in Brief, an Estuary Round up

The Association of Severn Estuary Relevant Authorities (ASERA)

ASERA is made up of the statutory organisations around the Severn Estuary that collectively manage their activities on the Severn Estuary European Marine Site which covers the marine areas of both the Special Area of Conservation (SAC) and Special Protection Area (SPA), which are protected under the EC Habitats and Birds Directives.

ASERA has created a Management Scheme to set the framework within which activities (controlled by competent or relevant authorities) are managed in ways compatible with the nature conservation objectives of the site. This Management Scheme is not a static document but an ongoing process that aids decision making and continually evolves to take account of changing information on activities, issues, management practices and legal obligations. Over the past year ASERA has been working to fill gaps and improve knowledge and understanding of uses of the Estuary. New and

existing data on the geographic distribution and intensity of land and water based recreation has been collated and processed into a GIS map to allow assessment of whether recreational activities are likely to cause significant disturbance to SAC and SPA habitats and species. Over the coming year, following this assessment, the Management Scheme and Action Plans will be revised to reflect the new data, and if necessary, will advise on what types of recreation and which specific locations require precautionary management measures.

Shelley Vince, ASERA Officer

Bristol Channel Standing Environment Group (BCSEG)

Further work by the BCSEG on improving the multi-agency preparedness for a marine pollution incident was largely put on hold from mid-2013 pending the revision of the Maritime Coastguard Agency's (MCA) National Contingency Plan. However, although the MCA's new Plan remains incomplete, it was agreed at

the Group's meeting in May this year to resume its work programme. Work areas currently being scoped are the identification of potential 'places of refuge' for stricken vessels; updating work on shoreline sensitive resources; and the possibility of producing a single Severn Estuary Area Contingency Plan.

The BCSEG website provides a general description of the Group, but for more detailed information contact the Severn Estuary Partnership as severn@cardiff.ac.uk

Rhys Morgan, Marine Technical Specialist, NRW

Severn Estuary Coastal Group (SECG)

The group last met in May and the winter storms were a major element of discussion. The damage to physical assets, beach losses and habitat damage were enormous. Repairs to physical assets have been ongoing since and will continue into the rest of this year with funding from both English and Welsh Governments. Most of the Estuary area suffered limited damage, but all agree that it was a very close issue and had the strong winds continued significant damage and flooding would have arisen.

There are three major reports from studies out now covering the South Coast, the South West Coast and the Welsh Coast. They are:

- Review of the South Coast Beach Response to Waves, Winter 2013-14, by the Channel Coastal Observatory;
- Review of the South West Coastal Beach Response to Wave Conditions, Winter 2013-14, by the Plymouth Coastal Observatory;
- Review into the Coastal Flooding in Dec 2013- Jan 2014 Part 2, by Natural Resources Wales.

There is much to learn from last winter's experience and the three studies above will enable all of us to deal with future storms more effectively.

One of the key areas of research and development this year is looking at options for withdrawing maintenance from existing defences at the coast. Defra will look at asset transfer to third parties and associated liabilities, whilst the Environment Agency will look at the practicalities of withdrawing maintenance, health and safety and environmental implications etc. It is envisaged that a practical information resource will be produced for practitioners as a result.

There is finally some progress on the IROPI (Imperative Reasons of Overriding Public Interest) situation for the Shoreline Management Plan. There has been a resolution of how to progress and manage the habitat replacement required to meet the SMP policies so the Welsh Minister can sign off the IROPI decision this summer.

The groups next meeting will be on 23rd September at the Bridgwater Offices of the Environment Agency and will be followed by a site visit to the Steart Marshes habitat replacement scheme. The major issue on the agenda will be a paper on the future of the group and how it will meet the challenge of operating as a Strategic group following the demise of the Bristol Channel Strategic Coastal Group.

Dave Harris, Chair SECG



Devon and Severn IFCA

The Devon and Severn Inshore Fisheries and Conservation Authority (IFCA) has a duty to seek to balance the different needs of persons engaged in the exploitation of sea fisheries resources in the district. Crucially, this includes both commercial and recreational fishing interests.

Due to the lack of up-to-date information on the number of sea anglers in England; the economic and environmental impacts of the sector and the concerns and interests of the anglers themselves, a national project was developed called Sea Angling 2012. The project was led by Cefas and included all ten IFCAs, the Marine Management Organisation (MMO) and angling group representatives. Sea Angling 2012 combined face-to-face interviews with shore and private boat anglers, charter boat catch diaries, and an Office of National Statistics household survey. IFCAs around the country conducted nearly 2500 interviews in 2012. Devon and Severn IFCA ran surveys throughout the Severn, talking to anglers about their fishing habits, catch rates and how much money they spend when they go fishing. In recognition of the importance of angling in the Severn area D&S IFCA decided to continue running angling surveys in this part of the district into 2013 and 2014.

Sea Angling 2012 reported that there are 884,000 sea anglers in England, which equates to about 2% of the population but in the South West this increases to 5.2%. Sea anglers spent £1.23 billion in the UK in 2012 and the sea angling sector directly created 10,400 jobs. The average annual spend per angler was estimated at £1394 per year, with food and drink, charter boat hire and accommodation on fishing trips being the most valuable elements. The significance of angling to peoples well-being



was also acknowledged by the report with 70% of sea anglers said that sea angling was important to their quality of life. Whilst local economic figures are not available, D&S IFCA are currently writing a report summarising the data collected on angling activity in 2012 and 2013 along the Severn coastline. IFCA officers have met with numerous angling clubs throughout the Severn from Minehead to the upper Estuary and now publish an 'Angling Update' newsletter to keep anglers up-to-date on the work of the IFCA. Following on from this work the IFCA has now developed a Recreational Sea Angling Strategy which outlines the way the IFCA will work with the angling sector in the future.

The IFCA has also identified three potential pilot Angling Zones which are being developed to assess the impact of introducing management measures to improve sea angling. One of these sites is in the Severn; Burnham, Berrow and Brean Angling Zone will exclude netting activities to allow the development and promotion of angling interests in the area.

See <http://www.devonandsevernifca.gov.uk/angling> - for more information.

Libby Ross, Devon and Severn IFCA

The Severn Vision Project

A new one year project to develop an ecologically informed and positive vision for the Severn Estuary is currently underway. The Vision will help to shape sustainable development, including energy generation within the Severn Estuary, to enable the conservation and enhancement of its wildlife, habitats and landscape for future generations. The Vision will take an ecosystem approach, and embody a restorative approach for nature, and make a business case for this. Using an integrated spatial framework to understand the Estuary at any scale, and from a wide range of perspectives, the project will identify what needs to be done to ensure the estuary can function appropriately, and continue to provide the goods and service we need and rely on.

The Severn Vision Project is a partnership project between the Wildfowl and Wetlands Trust, RSPB, The Wildlife Trusts, Severn Rivers Trust, National Trust, Salmon and Trout Association and the Campaign to Protect Rural England. The project partnership will be actively engaging with a range of stakeholders so that the resultant Vision can be owned and promoted by more than just the NGO community, and the hope is to take various stakeholders on a journey that will broaden their understanding of the value of the estuary.

To find out more about the project and how you can become involved
email: esther.collis@wwt.org.uk

Esther Collis, Severn Vision Project

Improving Coastal Access

Natural England recently began a project to improve coastal access along an 80 km stretch of the Severn Estuary between Aust and Brean Down. The stretch includes parts of South Gloucestershire, Bristol, North Somerset and Somerset. Officers from these authorities are providing expert local advice and helping to ensure there is full consultation with local interests during the development of the route.



The initial task is to understand as fully as possible the main strategic issues that we need to consider. Natural England is currently holding discussions with key national and local organisations as well as interested individuals to get their ideas and concerns about current access along this stretch. It will be assessing the problems, opportunities and constraints for improving it. It will also be trying to identify owners and occupiers of land that might be affected.

Natural England expects the new access to be ready towards the end of 2016. If you have any suggestions or ideas for improving access along this stretch of coast or have any further questions about the work Natural England are doing then please email: coastalaccessSW@naturalengland.org.uk

Gloucestershire NFU Severn Estuary Stakeholders

Gloucestershire NFU Severn Estuary Stakeholders (Glos NFUSES) was formed in December 2011 to address water and flood issues along the Gloucestershire section of the Severn Estuary. By building up relationships from grass-roots level to those charged with publicly managing flood events, Glos NFUSES have been able to work together to identify where that management was successful and where it could be improved.

Helpful generic flood warnings from the EA were not sufficient for those locations most seriously affected by flooding, notably at Minsterworth and Longney where the tidal surge met with the peak of the river's fluvial flow. In the future it is hoped that such places will benefit from a more targeted approach by the EA to enable parish emergency plans to be put into action at an earlier stage.

Members of Glos NFUSES are working with the EA to produce 'Life on the Bank', an informative leaflet explaining how farmers, landowners and the public can help to preserve sea and river defences and give them greater longevity. Overgrazing in the winter by ponies, the placing of livestock feeders on the top of grass embankments and driving vehicles along them all cause erosion and create 'low spots' which become the first places to overtop in times of flood.

Glos NFUSES helps to bring together a diverse range of different individuals and organisations and enable them to build relationships and work together on the management of both sides of the Severn Estuary.

Rose Hewlett, Clerk, Glos NFUSES

The Marine Strategy Framework Directive – An Update



The European Union's Marine Strategy Framework Directive (MSFD) requires Member States to achieve Good Environmental Status (GES) of marine waters by 2020. The directive came into force in July 2008 and was transposed into UK law in July 2010. It provides eleven descriptors of GES, addressing the components of marine ecosystems and the human pressures on them.

The UK published the UK Marine Strategy Part One in December 2012. This included an assessment of the state of the UK's seas, a detailed set of characteristics of what GES means, and associated targets and indicators for the eleven descriptors. Earlier this year, the European Commission published an assessment of these submissions under Article 12 of the MSFD. Although the UK was among the better performing Member States, the report was critical of some aspects of the definition of GES and found that the initial assessment and some targets were only partially adequate.

Defra consulted on proposals for UK monitoring programmes early in 2014. A summary of responses has just been published, together with the UK Marine Strategy Part Two, outlining the monitoring programmes for measuring progress towards GES in UK waters by 2020. A consultation on programmes of measures for achieving GES will begin in early 2015.

The Celtic Seas Partnership is working with governments and stakeholders in the UK, France and Ireland to develop initiatives and recommendations to help achieve GES. The initiatives will feed into government consultations on programmes of measures in 2015. For more information visit <http://celticseaspartnership.eu/>

Celtic Seas Partnership is an EC LIFE+ project delivered with the contribution of the LIFE financial instrument of the European Community. Project number: LIFE11/ENV/UK/392

Dan Crook, Celtic Seas Partnership

Report on Recreational Sea Angling from the English Coastline of the Estuary



A small bass ©Environment Agency



Cod caught in the Bristol Channel © Robert Thomas, www.worldseafishing.com



Thornback Ray ©Cardiff University

The Green Guide for Marinas

The Green Blue, the environment programme for the British Marine Federation (BMF) and Royal Yachting Association (RYA) has produced a guide for marina managers to help get to grips with environmental legislation and improve waste, energy and water management. The Green Guide for Marinas, funded through The Crown Estate's Marine Stewardship Fund, will be distributed across the UK to each of the 500 coastal and inland marinas.



Marina's Renewable Energy Project based on ground source heat pump. In most cases, improvements to environmental management have also lead to cost savings, offering an added incentive for marinas to review their environmental performance.

Julian Goldie, Manager of Tollesbury Marina, said: "Sustainability is much higher on the agenda these days for the whole recreational boating sector and to have a hands-on practical manual to provide bespoke advice for marina managers will be incredibly useful."

Jane Swan from The Green Blue said: "We know that there is a wealth of general environmental advice available for businesses, but we also know that marina managers are busy people who need quick access to practical information relevant to the recreational boating sector. This guide meets those precise needs."

In addition to The Green Guide for Marinas, The Green Blue has also produced an environmental legal register for marinas. This document is available free to British Marine Federation members and allows marina operators to assess their compliance levels and keep up to date with ever evolving environmental legislation

Andrew Collumbell from Premier Marinas - Environmental, Health & Safety Manager said "I have used it and it's absolutely great! Well done for pulling this together, not only is it a great way of checking our compliance but it's also a good prompt to look at areas that we may not have considered before"

For more information please visit www.thegreenblue.org.uk or contact 02380 604100



The Green Guide for Marinas is now available! ©The Green Blue

The Devon and Severn Inshore Fisheries Conservation Authority (IFCA) now have an experienced recreational sea angler on the committee, proving benefit to both parties. New federation rules have been adopted which apply in both open and club events for both boat and shore matches. They rule that all species landed must be checked for minimum length and then quickly returned to the sea alive.

January to mid-summer 2014 was not a successful year both for quality and quantities of fish. Although the winter months were mild, they were very wet and cod were not enticed upstream. The Estuary could only yield small and undersize whiting, pouting and codling.

One very noticeable absentee in the Estuary were the rays. Smaller members of the Shark family, especially smooth hounds have failed to make any real appearance to date, as have the larger conger.

On a positive note several double-figure bass have been caught, including a Federation record for a 15+ lb from a boat off Portishead, which was immediately weighed and then returned. Another 12 lb bass was taken from the Huntspill Wall near Burnham-on-Sea, however beach anglers are reporting very few small bass.

Don Metcalfe, President, Bristol Channel Federation of Sea Angler

The Severn Bore



The trailing whelps ©Mark Humpage

Many people will have heard of the Severn Bore, but what exactly is it and how is it formed?

The bore is a wave that travels inland, up the River Severn, for up to 20 miles. It can be 8ft tall or barely a ripple, even on the same tide. The tides on the Severn Estuary are amongst the highest in the world. The incoming tide is funneled up the estuary and 'squirted' into the river very much like a water pistol squirts a jet of water. As this water meets the out flowing river, a wave is formed. Technically this is known as a hydraulic jump.

So what causes the tide?

The tides of the world are caused by the combined gravitational pull of the sun and the moon. When they are inline, either side of the earth (full moon) or inline on the same side of the earth (new moon), they pull the oceans into bulges. As the earth rotates, the landmasses crash into these bulges and water is forced up beaches, rivers and estuaries. The tides on the Severn are so large due to the funneling effect of the tips of Wales and Cornwall scooping up a large body of water and focusing it into the estuary. Low pressure and storm surges increase both the size and speed of the bore.

Where to see the bore?

The bore wave starts to form near Slimbridge and depending on conditions, travels all the way to Maismore Weir near Gloucester. In the spring, when water levels are high, the best waves can be seen downstream around Arlingham and Newnham on Severn. During the autumn, when water levels are lower, the best waves are formed up stream near Gloucester.

There are many websites giving times, tide heights and viewing spots. The river is most easily accessed from the west bank along the A48. It can be followed upstream from Newnham on Severn, The Severn Bore Inn and Over Bridge giving three opportunities to see it. On the east bank, Arlingham is a good place to start and The Old Passage Inn does bore breakfasts on large tides. The next place to see it is Epney next to the Anchor Inn and then up to Over Bridge or Maismore Bridge.



The Severn Bore from above ©Mark Humpage



Surfing the Severn Bore ©Mark Humpage

Sabrina Dreaming - Severn Estuary Tidelands



©Anthony Lyons

Creative Explorations on the Severn Estuary Coast

Bristol-based environmental artist, Antony Lyons is working in the role of Artist-In-Residence on the Severn Estuary coast during 2014. This innovative creative partnership is hosted by the Countryside and Community Research Institute (CCRI) at the University of Gloucestershire, and funded by the Leverhulme Trust. The title Sabrina Dreaming (Severn Estuary Tidelands) derives from the name of the ancient river goddess, Sabrina or Hafren. Through a fusion of knowledge and imagination, Lyons seeks to expand and deepen the ways in which this coastal landscape is encountered and understood – scientifically, artistically and socially.

Layers of industry, agriculture, vegetation, soil, rock and water come together to make up the territory of the Severn Estuary. In addition, cultural layers of prehistory, history, heritage, story and myth are enduring sources of interest and conjecture. All of these become interwoven to form the complex natural and cultural ecology of this estuary region, characterised by the second largest tidal-range on the planet. These tidal



Hopes for sustainable eels as elver numbers rise dramatically in 2014

European Eels have been having a tough time over the past 30 years, but there are signs that the tide is turning as 2014 saw a huge rise in the number of elvers arriving in the UK from the Sargasso Sea.

Andrew Kerr, conservationist and Chairman of the Sustainable Eel Group (SEG), explains how rigorous new sustainable practises are trying to combine with natural forces to accelerate the eel's recovery:

"When we started the Sustainable Eel Group five years ago, the eel was in a real crisis. The number of glass eels arriving on Europe's western seaboard had plummeted since the mid 1980s, and there was little agreement about how mankind could help.

While a lot of people clamoured for an immediate ban on fishing across Europe many of the leading scientists and conservationists recognised that the eel's unique life cycle required a more holistic approach which included, rather than outlawed, tightly controlled fishing and allowed the development of sustainable production.

Five years on, new European regulations and greater awareness of the problems has mobilised a wide range of groups across Europe to bypass or remove the obstacles – the weirs, barriers and pumps - that are blocking the migration of eels and other fish. And as an emergency measure, each year millions of young eels are caught in areas where they are abundant like the River Parrett and the River Severn, and restocked (transferred) to rivers and lakes throughout Europe where the species has all but vanished. In the UK the Environment Agency, Wildlife Trusts, Rivers Trusts, SEG and other bodies have made over 600 obstacles passable for eels.

Scientists have never seen eels breed in the wild, but the most widely accepted theory is



Europe's flood defences and pumping stations need to be screened and bypassed to prevent needless eel deaths and to allow migration ©Sustainable Eel Group



that they spawn in the Sargasso Sea, and their eggs develop into tiny leptocephalae and then little glass eels (known as elvers) as they drift across the Atlantic on ocean currents to Europe. It's believed that the journey takes over a year, and estimated that 99% of them never arrive, as they are eaten or die on the way over.

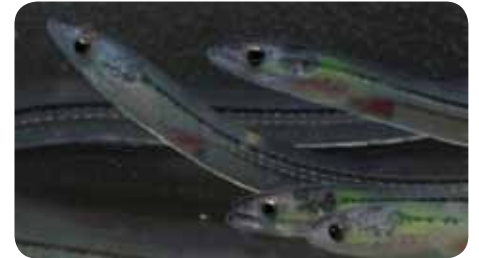
When the elvers arrive on the spring tides in Europe's west-facing estuaries, they need to swim up river to reach tributary rivers, streams and ditches so they can feed and grow for five or more years before migrating back to the Sargasso Sea as mature eels to breed. Unlike most species, eels will not breed in captivity.

Restocking projects were the most high profile this year. In total, about 90 million fish have been relocated across the UK and Europe in

the last 3 months by SEG and others – a record. In the UK, elvermen and women on the River Parrett caught 1.2 million glass eels in one night and donated them to SEG for restocking upriver.

It's important to remember that while this is incredibly helpful in years of abundance, moving fish in trucks and planes is not a long term solution, and work on removing migration barriers must increase and accelerate.

Meanwhile, the majority of Europe's eel industry has embraced the concept of sustainability and improved production techniques to meet the strict criteria of the Sustainable Eel Standard. This aims higher than the requirements of the 2007 European Eel Regulation and is reintroducing confidence to consumers, chefs and retailers that there is a sustainable way to enjoy eel."



Glass eels arrived on the spring tides in the UK in record numbers in 2014 – the fourth year of increase ©Sustainable Eel Group



Over 90 million glass eels were restocked in 2014 ©Sustainable Eel Group

dynamics are an enduring source of fascination for diverse groups, including geographers, bore-watchers, tidal-power developers and many more.

Focusing especially on the Forest-of-Dean coastal zone and the opposite bank between Gloucester and Avonmouth, Lyons is initiating new conversations, encounters and imaginative associations. By means of film and sound-based artworks, he hopes to extract and reveal some of the hidden and intangible essences of this water landscape. As CCRI Artist-In-Residence, Lyons also draws on his own extensive background as an environmental scientist and ecological designer - having worked for over two decades on water-related issues (water quality planning, climate-change adaptation, biodiversity etc.) in the South West. For Sabrina Dreaming, in conjunction with his field explorations, he is linking into current CCRI research topics relating to ecosystem services, water/food security, rural sustainability and other topical land-use challenges.

There will be an exhibition of the project's initial outputs in early November 2014, and the creative link with CCRI is planned to continue well into 2015. For latest news, background information and other research writings, visit: sabinadreaming.blogspot.co.uk and www.ccri.ac.uk/air/

Anthony Lyons, Sabrina Dreaming



©Anthony Lyons



Severn Estuary – Magnox Power Stations

There are three Magnox power stations along the Severn Estuary, Berkeley in Gloucestershire, Hinkley Point A in Somerset and Oldbury in South Gloucestershire, all of which are at various stages in their lives.

Oldbury, the youngest of the three, ended its generating life in 2012 and since then has been defueling which removes around 99% of the radioactivity on the site. Defuelling the reactors is the first phase in the decommissioning process. To date Oldbury has removed around 40% of its fuel elements. These are shipped to Sellafield by rail for reprocessing. There are less than 200 shipments to go before Oldbury's reactors are completely empty.

Once defueling is complete a site moves in to the dismantling phase where redundant buildings are cleared and demolished and waste is retrieved and stored, a task which is already well underway at Hinkley Point A. Defueled in 2004, Hinkley A has been able to deplant and demolish several buildings and most recently completed the drain of one of its cooling ponds – where fuel was stored before being shipped to Sellafield. The next stage for Hinkley will be to construct an interim storage facility (ISF) ready for the storage of its intermediate level waste.

Berkeley, the oldest commercial power station not just on the Estuary but in the Magnox fleet, is much further down the decommissioning road, having defueled some years ago and also having made huge leaps forward in demolition and hazard reduction. Next on its agenda will be to remove and sort some of the intermediate



Oldbury Power Station ©Magnox

level waste currently stored in large underground vaults. The site is using innovative techniques to retrieve the waste including petal grabs, robot arms and giant vacuums to scoop, grab and suck wastes from within tanks and vaults. Once the wastes are retrieved and sorted they will be transferred into ductile cast iron containers for storage inside the site's recently constructed ISF. Once wastes are inside the box, the site has also developed a first of a kind drying technique that will reduce the volume of waste. Developed in partnership with local firm Mechatech, this process may reduce the overall number of boxes that are required for storage in the ISF and the technique could be used across the industry.

The final phase in a decommissioning sites life is to enter care and maintenance. This is where the reactor buildings are left in a passive state to allow radioactivity to decay to enable safer and quicker dismantling. The Berkeley reactor buildings have already been put in to this 'safestore' state and are only routinely inspected every few years. The sites planned entry in to care and maintenance is 2021, followed by Hinkley in 2025 and Oldbury in 2027.



A general view of Hinkley Point ©Magnox



The new interim storage facility at the Berkeley site ©Magnox

Hinkley Point C Project Overview

EDF Energy plans to build two new reactors at Hinkley Point on the northern Somerset coast next to the existing Hinkley Point A station, which is being decommissioned, and Hinkley Point B station, which is operational. This project and all of its associated developments are known as Hinkley Point C (HPC). HPC will be the first in a new generation of UK nuclear power stations. Once operational, HPC is expected to provide approximately 7% of the UK's electricity, powering five million homes.



Oblique Aerial Image of Hinkley Point C. ©EDF Energy

As well as the construction and operation of the power station itself, the HPC Project includes associated developments in the surrounding area. These include: worker accommodation campuses, four park and ride facilities, a temporary jetty and refurbished wharf to deliver as much heavy equipment and material as possible by sea; a bypass around the local village of Cannington and highways improvement schemes.

The commercial terms for HPC were agreed with Government in October 2013. The UK Government then submitted the State Aid notification for the HPC investment contract to the European Commission. The European Commission (EC) is currently examining responses following the close of public consultation on 7 April. The UK government continues to work



with the EC to reach a resolution and the process continues to run to timetable – a decision is currently anticipated in autumn 2014. EDF Energy will make a Final Investment Decision on HPC after the EC has announced its decision.

Current activities
Site preparation work to facilitate a smooth start to the main construction is well underway. These activities will ensure that earthworks - the first major component of the main construction programme - can begin as smoothly as possible when the time comes. Preparation work includes construction of two key roundabouts at the site entrance; six drainage ponds to help manage water during earthworks; on site 'haul roads'; and a bund (a large mound of earth) to screen construction activities. All of these works could be reversed if necessary.

In the local area work has begun on the associated developments including road improvements on the route to the site and ecological and archaeological investigatory work in preparation for the planned bypass around the village of Cannington. A HPC harbour master is now in post to begin managing the responsibilities associated with the construction of a jetty that will receive the aggregates direct to site.

SSE Seabank 3 CCGT Power Station

SSE is proposing to develop a new combined cycle gas-fired power station (CCGT) called Seabank 3. The power station will be located on a site at Severnside, near Bristol, close to the existing Seabank Power Station (Seabank 1 & 2) approximately 5 km north east of Avonmouth and 10 km from Bristol, in an area called Crooks Marsh.

Seabank 3 would have an electrical generating capacity of up to 1,400 megawatts, making it a Nationally Significant Infrastructure Project (NSIP) which, under the Planning Act 2008, requires planning permission before construction that is granted by the Secretary of State, and is known as a Development Consent Order (DCO).



The power produced from Seabank 3 would be generated from gas supplied through existing gas infrastructure and exported onto the main electricity grid network via the existing substation, directly adjacent to the current Seabank power station.

The project has been through two formal consultation periods to date, during which a number of public exhibitions were held in the local area. These consultations have provided the project team with valuable feedback from key stakeholders and members of the local community which will be taken into consideration when finalising the DCO Application.

An environmental impact assessment (EIA) is required to be prepared as part of our

DCO Application and the preparation of this is currently underway. An EIA considers the potential effects of the proposed power station on the environment and aims to avoid or mitigate any significant effects.

In addition to providing much needed additional generation capacity for the UK the Seabank 3 project would bring many local benefits, including direct and associated employment through both its construction and operational lifecycles.

SSE currently aim to submit the DCO Application to the Planning Inspectorate, in early 2015 and if, following a 12 month period of examination, the application is successful, and permission is granted, the plant could be operational by 2021. Construction would take around 4 ½ years and once operational the plant would have an expected lifespan of around 30 years.



Harnessing the Power of the Tides

At 320 MW installed capacity, with first power expected in 2018,

Swansea Bay Tidal Lagoon will be the largest marine energy development in the world. It will have an entirely predictable 495 GWh output each year of clean, green electricity and will power an estimated 155,000 homes for 120 years – that's about 11% of Wales' domestic use.

Tidal Lagoon Power plans to follow with five full-scale tidal lagoons in UK waters, meeting approximately 8% of the UK's electricity requirements. Mark Shorrock, its Chief Executive, explains why they want to harness the power of the tides in the Severn Estuary.

"The facts speak for themselves: we are an island nation with largely untapped marine energy resource; yet in 2012, renewables provided just 11.3% of electricity generation; and we know that Britain's electricity reserve

generating margin could fall to as low as 2% by the winter of 2015/16.

We have both the need and the opportunity to deliver clean, predictable and secure electricity from a fleet of lagoons. With tide times differing around the UK, the fleet could offer a continuous and sustainable electricity source.

Early feasibility studies show that the Cardiff and Newport areas have an average tide of over 9 metres with potential to deliver an annual net energy output in excess of 8.3 TWh. Survey work and data gathering is currently underway to inform proposals, support engineering designs and act as a foundation for environmental assessments.

The Severn Estuary is at the heart of the tidal lagoon opportunity. But any development will have to marry energy output and economic benefit with environmental sensitivity and social acceptance. Working in partnership with a wide range of stakeholders at Swansea Bay, we have proved that this can be done and established a blueprint for the future.

Economic studies have demonstrated that a fleet of six lagoons would contribute £27bn

to UK GDP during construction alone. In operation, they will secure long-term, diversely skilled, industrial employment for local people and iconic energy infrastructure at the heart of the community.

Further studies found that tidal lagoons can offer large-scale, low carbon power at a significantly cheaper price than offshore wind. The more water we impound, the more power we produce, the less support we require. It really is that simple. And with an operating life of over one hundred and twenty years, tidal lagoons offer future generations even lower cost electricity following their thirty-five year period of strike price support.

Swansea Bay Tidal Lagoon is the start of our journey; a vital first step to large-scale, long-lived, low carbon electricity generation working in harmony with the many other environmental, social and commercial contributions of the Severn Estuary."

Mark Shorrock, Tidal Lagoon Swansea Bay

Visit www.tidallagoonswanseabay.com for more information.



Visual image of the proposed Swansea Bay Tidal Lagoon ©Tidal Lagoon Power

The SS Belgia and the Capture of the First German Prisoners of War

In 1902 the Workman, Clark & Co shipyard in Belfast built the 8151 ton cargo ship SS Irak for the Irak Steamship Co of Liverpool who operated her for the next ten years. In 1911 she was sold to T&J Brockelbank, also of Liverpool, and renamed the SS Mandasor, only to be sold in 1913 to the Hamberg-Amerika Line in Hamburg and renamed again as the SS Belgia.

In August 1914 the Belgia was en route from Boston in the USA to Hamburg, carrying 'a considerable quantity of specie (coinage) and £200,000 worth of food', and found herself off the Scilly Isles on August 3rd. The Captain was informed that evening that war had broken out between Germany and France and, rather than risk being captured by a French vessel in the English Channel, he altered course up the Bristol Channel, taking on a Newport Pilot when off Trevoise Head saying he was running short of coal.

The Belgia arrived off Newport just before 6.00 PM on August 4th and was ordered by the Dockmaster to anchor off the English & Welsh

Lightship, considered to be within the Port of Newport. The Declaration of War between Germany and Britain came into effect at 23:00 that evening.

Monmouthshire thus had a war prize within its boundaries the moment war was declared and the local authorities lost no time in dealing with this situation. Newport Constabulary hastily equipped 12 Constables with borrowed service rifles and the Chief Constable, Captain CE Gower, with the aid of the Dockmaster, Capt Cutcliffe, set off in one of Newport's tugs to board and capture the Belgia. The ship was transporting 73 German Reservists together with 20 crew but these offered no resistance and the Belgia became the first mercantile prize of WWI and the Reservists amongst the first German Prisoners of War.

Contemporary newspaper reports indicated that the Belgia was also carrying wheat, copper ingots, tobacco, cotton bales, logs, phosphate rock and a number of live alligators and other reptiles destined for Hamburg Zoo which were acquired by an entrepreneurial character from Abergavenny and put on show in the town!



SS Belgia ©Newport Past

By early September much of the cargo was already included in auctions conducted at the Waterloo Hotel at Alexandra Dock in Newport. In June 1915 the vessel was declared a lawful prize by the Admiralty and passed into new ownership, having been acquired by the Strick Line in London and renamed the SS Huntsrick.

She lead a relatively charmed life for the next two years until June 8th 1917 when she was off Cape Spartel at the entrance to the Straits of Gibraltar. She was en route from London to Salonika with a cargo of troops, stores and motor launches when she was torpedoed by the German submarine U-39 with the loss of 15 persons.

Dr Naylor Firth

Monmouthshire Shipbuilding in WWI

Iron ships had been built at Chepstow ever since Edward Finch located his works on the river bank to build Brunel's railway bridge in the mid-1800s. In 1916 a consortium lead by John Silley, a previous employee at Finch's, bought the yard to build ships on the principle of standardisation of design and units, a technique studied by Silley in the American motor industry.

The Standard Shipbuilding & Engineering Co set about expanding the yard and building ships in response to the British Government's plans for UK yards to build ships faster than the German U-boat fleet could sink them, there being no effective counter-measures to their menace.

The SS Petworth and SS Tutshill were both of just over 2,000 tons and were laid down in 1917. They were launched about eight months later and were engaged as colliers supplying the fleet with South Wales coal. Both survived WWI only to be torpedoed by U-boats in WWII in the Mediterranean within three months of each other and barely 50 miles apart.

A little later two 470 ton tugs were laid down, the Dainty and the Dandy, launched towards the end of 1918. The Dainty was sold to the

Irish Free State in 1922, the first vessel owned by the newly established Eire.

In tandem with the expansion of their yard the Company set about building accommodation for the increased numbers of employees

required. Garden City was laid out and the first 30 houses completed by early 1917. Women started to be employed in manual operations at the yard in the light of more men being needed in Flanders.

The Government nationalised the yard in August 1917 as National Yard No1, commandeered the Beachley Peninsula where they built National Yard No 2 and laid down plans for the construction of National Yard No 3 at Portbury. The latter was never built, the Beachley yard never built a ship and was dismantled as soon as it was completed and the Chepstow yard was eventually sold to the Monmouth Shipbuilding Co after much legal haggling by August 1920.

During the next four years 13 ships were built and launched from Chepstow, six of which were 6,500 ton cargo ships that were immediately sold to Italian shipping companies! One of them, the SS War Genius eventually became the German-owned Carl Fritzen and was scuttled off the River Plate in Uruguay on the second day of WW11 as HMS Ajax approached, Ajax having sunk the German freighter Olinda the previous day.

The Monmouth Shipbuilding Co Ltd was sold to the Fairfield Shipbuilding Co in August 1924, a name still closely associated with Chepstow.

Dr Naylor Firth



Fig. 13. SS Petworth, launched 17 Dec. 1917, torpedoed off Algeria, 09 Nov. 1942. Reproduced from www.photoship.co.uk. Source: unknown.



Fig. 14. SS Tutshill of Farnes launched 16 March 1918, torpedoed off Algeria, 25 Feb. 1943. Reproduced from www.photoship.co.uk. Source: unknown.

FUNDING PARTNERS

The Severn Estuary Partnership is very grateful and thanks all of our funding partners who help make our work possible. We value your continued support and look forward to working with each of you in the future. Here is an update from some of our funding partners about the recent work they have been undertaking...

Forest of Dean District Council



The Forest of Dean District Council is currently consulting on a pre-publication draft of the Allocations Plan. A planning document that, when finalised,

will contain allocations for development but also protective designations in its district.

A major aim of the Plan is the intention to provide a new focus for Lydney, which takes advantage of its location on the Severn Estuary and provides better connected higher quality employment opportunities.

This in part depends on improvements to the appearance of the area but also the provision of a range of new uses and enabling new activities which can enhance or re-invent the areas relationship with the harbour and the estuary. At this stage the plan proposes:

- The allocation of the harbour itself and associated land for recreation and tourism based use.
- Pine End Works and land to the rear for mixed uses including tourism and recreation but also residential.
- The Lydney industrial estate for a range of employment but including a new frontage.

- The lakes south of the station for conservation and recreational use.
- The mainline station itself for improvements and linkages to the Dean Forest railway together with some mixed development that complements the station itself.
- The identification of new and improvement of existing cycle and walking routes, including functional and recreational paths and linkages to the town, the east of Lydney neighbourhood, and to the wider area.

Gloucestershire County Council



Gloucestershire County Council (GCC) has been involved with the Severn Estuary Partnership since its formation in 1995 and is part of the management group. The River Severn is an important part of the County from a cultural, landscape, biodiversity and

transport perspective as well as many other aspects. GCC is the statutory planning authority for minerals and waste related development. As part of the emerging Minerals Local Plan, GCC has recently consulted on the Site Option and Draft Policy Framework. The consultation period ran from 23rd June to 18th August. It focuses on the preferred strategy approach, potential site options for aggregate minerals provision, options for minerals safeguarding areas and outline draft

policies for the Minerals Local Plan. Comments are now being reviewed. The Minerals Local Plan is due to be adopted in 2016.

The County Council is also responsible for producing the Local Transport Plan (LTP). LTP 3 is currently being reviewed with a potential adoption date of autumn 2015. The review will look at all modes of transport. GCC looks forward to many more years of involvement with SEP.

Natural England



Natural England has been working with the Environment Agency on a number of coastal realignment projects on the Severn Estuary, to create sustainable sea defences on a vulnerable coastline, as sea levels rise. Early autumn 2014 will see the completion of the largest ever coastal realignment project in Europe on the Streat

Peninsula in Somerset. We will be involved in the ongoing management of this new wetland complex led by the Wildfowl and Wetlands Trust (WWT). Work has also been ongoing to create a new area of saltmarsh near Alvington in Gloucestershire.

Natural England has also been supporting South Gloucestershire Council's 'A Forgotten Landscape' project (funded by the Heritage Lottery Fund's Landscape Partnership programme). The project aims to restore the heritage of the Lower Severn Vale Levels, promoting and contributing to the restoration

of habitat and landscape, as well as improving access and creating volunteering and learning opportunities.

There has been a big focus on monitoring and evidence, looking at the Estuary's intertidal habitats and subtidal sandbanks. We are starting work on the special area of conservation's migratory fish (shad and lamprey) and looking at how the special protection area's overwintering birds use the site (by identifying roosting sites). This research helps us understand how these habitats and species are doing.

Natural Resources Wales



A significant role of Natural Resources Wales (NRW) within tidal waters is the determination of Marine Licences on behalf of Welsh Government. The licensable activities conducted during 2014 include the disposal of maintenance dredged waste from the ports at Barry, Cardiff and Newport to sites within the

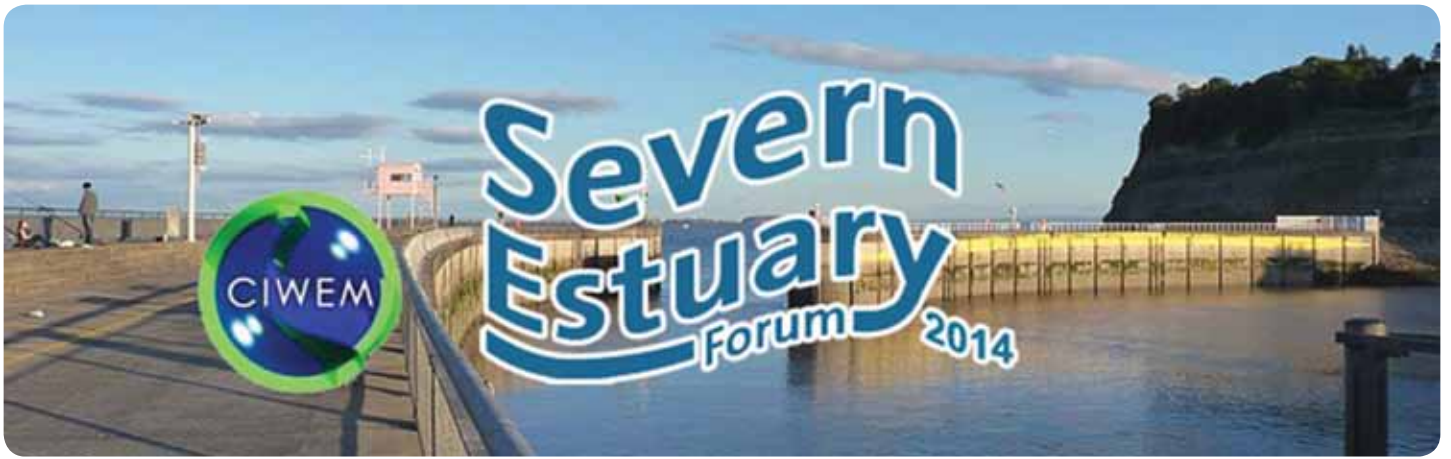
Estuary, sand dredging on the Welsh Grounds and the removal and refurbishment of three sewage outfalls between Penarth and Newport. It is currently assessing an application for the disposal of dredged material from the new Hinkley Point power station development to Cardiff Grounds (the nearest licensed disposal site).

In addition to its case-work and 'normal' functions relating to the coastal and marine environment NRW has been working with

partners on several large projects such as the latest Severn Estuary Shoreline Management Plan, the Severn River Basin Management Plan, a shoreline sensitivity assessment to marine pollution incidents, a joint project with Natural England on an Improvement Plan relating to the management and restoration of the Estuary Special Area of Conservation and Special Protection Area features; and the Wales Coastal Flooding Review of the winter storms, completed in April.

The Severn Estuary Partnership is also funded by the Environment Agency, Monmouthshire County Council, Newport City Council and Somerset County Council.





Severn Estuary Forum Series

The Severn Estuary Forums are engaging and exciting events intended for all interested in learning about the latest research and policy developments around the Severn Estuary. Hosting a lively and informative day of presentations and talks, the Severn Estuary Forum offers a unique opportunity to network with and learn from others, share ideas and help participate in the management of the Severn Estuary.

The 2013 Severn Estuary Forum was successfully held at Gloucester Guild Hall on 17th October 2013. Sessions included the Upper Estuary and hot topics with Brian Shipman presenting 'A Sustainable Severn Estuary'.

Following on from last year's success, the 2014 Severn Estuary Partnership Forum will be held in the Julian Hodge Lecture Theatre, Cardiff University, Cardiff, on **16th September**. This year the Severn Estuary Forum is being kindly sponsored. The Forum venue is sponsored by Cardiff University via the River Severn package; the programme is sponsored by ABP via the River Avon package; the tea/coffee is sponsored by BMAPA via the River Wye package and Marine Space are sponsoring the conference packs via the River Parrett package.

The event is supported by CIWEM (The Chartered Institution of Water and Environmental Management) and will be a Continuing



The 2011 Forum was previously held in Cardiff

Professional Development event for members of this professional body. The key themes for this year are climate change, estuary planning, energy generation and local issues. A total of thirteen speakers will present throughout the day with around 150 delegates expected to attend, from a wide range of sectors. A number of displays will also be presented by various organisations/companies throughout the day, offering delegates a further opportunity to network and learn more.

Tickets for the 2014 Forum are still available and can be purchased online at: <http://www.severnestuary.net/sep/forum.html>

If you have any further questions about this year's Forum, or would like to purchase display space, please contact us at severn@cardiff.ac.uk



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The Severn Estuary Partnership is an independent, estuary-wide NON-statutory initiative led by local authorities and statutory agencies. We work with all those involved in the management of the Estuary, from planners to port authorities, fishermen to farmers and many more with an interest in the future of the Estuary.

