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Environment Systems Newsletter
Autumn 2016

Welcome

As Autumn takes hold we are focused on a number of new projects including more work on the caribbean island of Anguilla, so some continued sun for the lucky few. The COBWEB project is drawing to a close but this is really the beginning as we start to develop operational services - come and talk to us if you would like to find out more. We are also getting used to our new surroundings in a building in which we are sole occupants. Exciting times! editor@envsys.co.uk

Mapping Anguilla's Coastal Waters

Stakeholders discussing priority areas for hydrographic surveys following the launch of the project

Environment Systems has embarked on its fourth project on the Caribbean island and British Overseas Territory of Anguilla. The other project partners are the Centre for Environment Fisheries and Aquaculture Science (CEFAS), the Department of Environment Government of Anguilla, the United Kingdom Hydrographic Office (UKHO) and Newcastle University. This project is funded by the Darwin Initiative.

In many areas around the world nautical charts are still based on historic 20th or even 19th century data. This project seeks to address that situation and obtain more and higher quality data which will lead to better informed decision making and safer navigation.

New hydrographic data will be collected in priority areas identified by local stakeholders. Surveys will use the latest state-of-the-art seabed mapping technology. This will be complemented with satellite derived bathymetry data around the entire island which Environment Systems has produced on a previous project and we will augment on this project. The data will provide a high resolution 3D map of the underwater world around Anguilla and be used by the UKHO to update its navigation charts. Accurate charts will help reduce vessel groundings, damage to reefs and seagrass species and environmental incidents. All data collected as part of this project is being made freely available.

The data will also be used to create new habitat maps that show the distribution and extent of seabed species and communities in selected areas around Anguilla. These habitat maps will provide marine managers with a tool to identify potential marine protected areas or introduce local management schemes and will become available in 2017.

A Bright Future for COBWEB Technologies and Knowhow

The COBWEB citizen science project set out to develop a software infrastructure that would facilitate citizens using mobile devices to collect environmental data suitable for use in policy and decision making. It has been hugely successful. Over four years the COBWEB consortium has built platforms and applications, established security and privacy protocols and data standards. These are now bearing fruit as part of the Environment Systems offer and there is a lot more to come. The first commercial outputs appear in the form of:

- Technology for deploying citizen science projects (field data collection, survey design tools)
- Domain expertise - i.e citizen science consultancy
- Data quality assurance and services

Work continues by Environment Systems on the assessment of the technology readiness (TRLs) for a wide range of other project learning to ensure that the huge promise of citizen science can be realised operationally.

The majority of the COBWEB technology components have been made available under open source licences and the COBWEB team continue to engage the open source developer community to help promote wider adoption and further development. This will open up the possibilities for many future citizen science projects which can be built directly upon strong software foundations.

COBWEB
Citizen Observatory Web

Team Building Day

The Environment Systems Team and the 42kg of litter picked from Aberystwyth North Beach and Promenade

In July a team from Environment Systems came together for a 'team building day.' A company meeting in the morning was followed by a trip to the beach, no swimming, surfing or sunbathing for us though!

We spent two hours litter picking along Aberystwyth North Beach and Promenade and collected a total of 42.44 kg (12 bags) of rubbish. A big thank you to Ceredigion County Council for lending us the equipment! As we basked in collective pride and a job well done we made our way to the Glengower Hotel for a bit of sustenance! A great time was had by all.

Southeast Regional Coastal Monitoring Programme

Flower rich chalk grassland at Cuckmere Haven, near Eastbourne

Environment Systems, has been successful in its bid to the Southeast Regional Coastal Monitoring Programme for the ecological mapping of an area stretching from the Isle of Grain in Kent to Portland Bill in Dorset. The area to be mapped is around 921 sq km and consists largely of coastal and intertidal habitats, extending inland up to 1 km in places. The project is managed by New Forest District Council and funded by DEFRA.

The team has previously mapped the ecology of the Northwest England coast for Sefton Council, under the Northwest Regional Coastal Monitoring Programme and part of the Southwest coast under the Southwest Regional Monitoring Programme.

As in previous coastal projects Environment Systems' habitat mapping methodology combines state-of-the art rule based classification techniques with manual air photo (RGB and CIR) interpretation and field verification. Key to the success of mapping the habitats is the ability to segment the aerial photography into meaningful objects that accurately and precisely describe the habitat boundaries, as well as a special GIS plugin, developed in-house, which enables rapid manual classification.

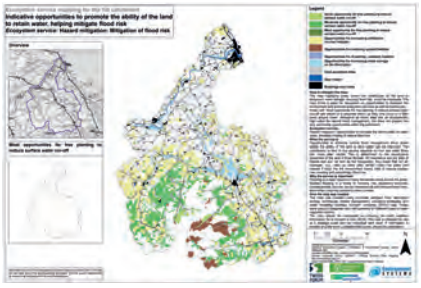
Coastal monitoring data is made freely available and used by Local Authorities, the Environment Agency and Natural England to contribute to their high level reporting and monitoring requirements for Natura 2000 sites, Biodiversity Action Plans, Shoreline Management Plans and Sites of Special Scientific Interest. The Integrated Habitat System (IHS) is being used as the habitat classification system.

The maps will be accessible from: http://www.channelcoast.org/southeast/

Office Move

Everyone at Environment Systems is excited because at the end of September we moved our head office into a bigger premises, the first in which we occupy the whole building. The move is a reflection not only of our continued growth but also of confidence in the future of our business. Situated within the same science park just 'up the road' from our old offices the new premises offers more space, more meeting rooms, our own garage and a new kitchen with space to relax away from our desks.

Tackling diffuse pollution in the Till river catchment



Map of the Till catchment identifying the opportunities to promote the ability of the land to retain water to help mitigate flood risk

Environment Systems has just completed a project working with the Tweed Forum, Northumbrian Water and the Environment Agency. The project set out to find the best places to take land management actions to mitigate diffuse pollution emanating from the Till catchment. The Till catchment leads into the river Tweed near the estuary at Berwick-upon-Tweed where diffuse pollution is causing problems with the beaches on the estuary, which are failing bathing waters standards.

Agriculture is one of the main sources of diffuse pollution emanating from both the use of fertiliser and pesticides and stock grazing which produces faecal coliforms. Sedimentation is another problem which is caused by soil erosion.

In this project Environment Systems used a variety of data sources and earth observation techniques to update the existing habitat map for the whole Till catchment which was originally created in 2006. In addition an ecosystem services stock map has been produced to show where existing land cover is already helping to prevent diffuse pollution, plus a stock map of agricultural pasture land. We have also produced a woodland creation opportunities map plus a wider opportunities map to indicate places to site new land management actions, such as tree planting or field buffer strips, to improve water quality. Land at risk of soil erosion has also been mapped as well as the banks of the main channel of the Till.

Samuel Pike Elected to RSPSoc Council

Samuel Pike one of our Remote Sensing & GIS Consultants has been elected to the RSPSoc (Remote Sensing & Photogrammetry Society) Council. RSPSoc is the UK's leading Society for remote sensing and photogrammetry and their application to education, science, research, industry, commerce and public service.

As a charity, its remit is to inform and educate its members and the public. It supports networking between the university, business and government sectors. As an international society, RSPSoc is also active in Europe and on the world stage.

Environment Systems is pleased to be supporting RSPSoc which alongside our membership of BARSC (British Association of Remote Sensing Companies), enables us to influence and support the UK space industry.

BS 8555 Environment Management

Inevitably as a company grows it will consume and produce more. Our environmental credentials are important to us which is why we employ an Environmental Management System (EMS) which is accredited to BS8555:2003 Phase 2, a framework for monitoring our performance. The company had its annual inspection in August and we can list the following achievements:

- A decrease of 11.3% (4.2% decrease per person) in the total waste we generate,
- We managed to decrease the amount of our waste that went into landfill by 59.1% (6.5% decrease per person)
- The waste that went for recycling decreased by 17.6 % (2.4% decrease per person)
- The waste that went for composting increased, by 39.0% (4.8% increase per person)

Our energy and water consumption did however increase, a reflection on our increasing reliance on high performance computing, dual screen sets ups, and server provisioning for cloud based data delivery and perhaps a few more cups of tea and coffee!

- Electricity, 9.64 % increase
- Gas, 0.43% increase
- Water, 23.87% increase

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