

**PRESS RELEASE**

July, 2007

**Carrying Capacity – Tools, Results and User Perspectives**

A workshop on Carrying Capacity Studies - Tools, Results and User Perspectives was held in the Geological Survey of Ireland at Beggars Bush, Haddington Road, Dublin 4 on Wednesday 11<sup>th</sup> July 2007. The workshop was organised by AquaTT on behalf of the Irish Partners of the EU Keyzones Project, South East Shellfish Co-op, Clew Bay Marine Forum and La Tene Maps. This workshop followed up a conference held in Westport last September.

The workshop was attended by 25-30 delegates mainly from companies and organisations who are currently involved in Carrying Capacity studies and shellfish farmers. The day was a great success as it allowed the delegates get an update on progress on the various projects which have started, are ongoing or have been completed in Ireland over the past nine to ten months. The workshop had delegates from the three main projects SMILE, KEYZONES and UISCE.

Professor Gavin Burnell from the Aquaculture and Fisheries Development Centre of University College Cork (Ireland) and AquaTT Director, formally welcomed everybody to Dublin after which John Coleman from La Tene Maps introduced the conference and the various projects.

The workshop was opened by a brief introduction to the EU Funded Keyzones Project by Keyzones Coordinator Dennis Gowland from Orkney based Research Relay. This was followed by two presentations by Ana Sequeira from IMAR, Institute of Marine Research (Portugal) on behalf of J.G. Ferreira, Anthony Hawkings and herself on "Tools for Management of Shellfish Resources". The first presentation was on the "Farm Aquatic Resource Management (FARM™) model" which is directed at both the shellfish farmer and the regulator, and is particularly useful because it is web based and usually only takes 20-30 minutes to run a scenario. It's main uses are:

- \* Prospective analysis of culture location and species selection
- \* Ecological and economic optimization of culture practice (timing and sizes for seeding and harvesting, densities and spatial distributions)
- \* Environmental assessment of farm related eutrophication effects (including mitigation)

For more information please go to: <http://www.farmscale.org/keyzones>

The second presentation was on the "Loch Creran EcoWin2000 model results". Also in this model, scenarios only take 20-30 minutes to run. Different scenarios were run looking at things like simulating total oyster production for the loch over a ten year period to the effects of doubling the amount of seed introduced. It was stated that it is likely to be a year before the Ecowin model will be available online.

The next presentation was given on "General concept of carrying capacity modeling using Delft3D" by Maarten Kuijper - Delft Hydraulics, Netherlands. Maarten went through the different types of Carrying Capacity Study and the steps which make it up, including setting up and validating Hydrodynamic, Water Quality and Ecosystems models. The effects of adding new mussel farms to clew bay with their non validated model of Clew Bay were shown as well. In discussion it was stated that Hydrodynamic modelling was very data intensive and the models take up to twenty hours to run a scenario. It was also noted there was just as much a need for scenario modelling as outlined by Maarten Kuijper of Delft as there was for systems like Farm™ and Ecowin 2000.

Aad Smaal – from IMARES, formerly Netherlands Institute for Fisheries Research (RIVO) gave a presentation about the capacity for sustainable shellfish production in the Netherlands. His presentation included characteristics of Dutch Shellfish Culture, problems and perspectives and comparison with other Keyzone areas. In the Netherlands, mussel seed is usually transported from the Wadden Sea to the Oosterschelde. In recent years both the tonnage of seed available and the tonnage of mussels produced has been declining, the latter due to poorer meat content. On Oysters there has been the problem of wild spatfall of the gigas oyster which has taken over large parts of the Oosterschelde with wild reefs.

Mr Smaal showed in his presentation that the three different bays in the Keyzones project were compared and by plotting Residence Time against Clearance Time and Primary Production Time he came up with a "Carrying Capacity Index". This allows him to specify whether an area is undergrazed, at maximum exploitation or overgrazed. This has led him to summarise that Clew Bay and Loch Creran are undergrazed and that the Oosterschelde is close to overgrazing.

The last presentation before lunch was by Gavin Burnell on Biological Issues for the Management of Irish Sea Mussel Seed. Over the past number of years there has been a decline in the tonnage of seed mussel seed dredged from the Irish Sea. The Marine Institute/BIM funded a study to understand the biology and ecology of mussel seed beds in the Irish Sea to assess their abundance and sustainability and also to suggest management strategies for the sustainable exploitation of the mussel resource in the Irish Sea. They looked at Reproduction, Recruitment, Hydrodynamic Modelling, Alternative sources of seed and management strategies. As part of this study the group modelled the movement of mussel larvae.

After Lunch Alan Berry from Marcon gave an update on the BIM led project called UISCE covering Wexford Harbour, Dungarvan and Killiary. This project started late 2006 and has made good progress since then. BIM looked at the various projects in place before putting together the project team. This project is using some of the modeling systems developed for the previous projects eg Ecowin and Farm<sup>TM</sup>. BIM expects to deliver a desk based carrying capacity modeling system by September 2008.

Thom Nickell from SAMS in Scotland presented on Validation and Ground Truthing models. Examples were taken from a number of projects, both European and Asian. Ground truthing is an essential part of the process as it is needed to verify the models.

The last presentation was given by Mr. Niall O' Boyle - Clew Bay Marine Forum, titled A local Marine initiative Adapting a broad and flexible outlook. In this presentation Niall lists why Clew Bay Marine Forum got involved in the Keyzones Project. They saw it as a way of developing a scientific model to underpin a predictive bay management strategy thus providing an effective management tool.

The workshop ended with an open discussion, where raised issues included the accessibility and availability of the tools especially to farmers, as well as Short Run Models versus Long Run Models. The meeting concluded with stating that carrying capacity studies are an important resource management tool. However, these studies were costly to do and were changing rapidly building on the developments/tools developed by previous studies. The participants look forward to the completion of the BIM study as this would probably be the format that would be rolled out in the future for other Irish bays.

John Coleman, the local workshop organiser, formally closed the workshop and thanked everyone for coming, including AquaTT for providing the secretariat, and BIM and the Marine Institute for sponsorship.

Note: Presentations made at the workshop are available for download on the website: [www.aquatt.ie](http://www.aquatt.ie) (recent events).

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