

Why are Salmon Dying at Sea?



International Project Uses DNA technology to "Fingerprint" Salmon at Sea

A unique international scientific mission, to investigate the increasing mortality of salmon at sea, sails today (Friday 16th May) from the port of Killybegs aboard the Marine Institute's research vessel *RV Celtic Explorer*. The project, SALSEA-Merge, will investigate the migration and distribution of salmon in the North-East Atlantic. It will involve three marine surveys during 2008 and 2009, to be conducted by Irish, Faroese and Norwegian research vessels and will use cutting edge DNA technology instead of conventional salmon tags. Similar programmes are also planned for 2008 in both North America and Greenland. The €5.5 million project is funded by the European Union with significant contributions from a consortium of interested parties including the North Atlantic Salmon Conservation Organisation (NASCO) and the TOTAL Foundation. Full information can be accessed online at www.salmonatsea.com.

Minister for Agriculture Fisheries and Food, Mr Brendan Smith T.D. has welcomed the inauguration of the SALSEA Merge programme. "We are delighted to be associated with this unique adventure at sea," he said. "Salmon act as 'aquatic canaries', picking up a wide range of biological signals relating to the health of the oceans, as they travel across vast tracts of the North Atlantic. Ireland's key involvement in this initiative signifies very clearly the major role that Irish scientists are playing in the ecosystem-based management of our valuable marine stocks and we wish the ambitious programme every success."

Minister Eamon Ryan T.D., Minister for Communications, Energy and Natural Resources is also associated with the launch of the programme. "We are investing considerable resources in our attempts to restore and protect our wild salmon stocks. The determined and at times very painful efforts we have made over recent years to conserve our salmon stocks are totally dependent on scientific advice," he said. "If that scientific advice ends at the estuary and ignores the oceans, we are going to find it very difficult to manage our stocks against a back drop of increasingly poor marine survival. This innovative programme is one that is fundamental to the rational management of our salmon stocks and we are particularly pleased with the role Ireland has played in conceiving and implementing this multi-million Euro programme"

Ireland had played a major role in the planning and implementation of this Salmon-at-Sea programme, which includes the use of Ireland's research vessels; *RV Celtic Explorer* and *RV Celtic Voyager*. The programme is a unique public private partnership which will follow the small juvenile salmon from southern Europe to the Barents Sea in the far North. It will involve three marine surveys over the summer months in 2008 and 2009.

The first of these surveys has already been conducted using the *RV Celtic Voyager* and the main Irish survey commenced today from Killybegs aboard the *RV Celtic Explorer*. Its mission is to map

the migration and the distribution of salmon stocks at sea using ground-breaking genetic fingerprint technology. This cutting-edge innovation, which replaces conventional salmon tags, has already facilitated the mapping of all of the major salmon stocks in Europe. Using methods similar to the DNA analysis used in tracking criminals, it identifies individual fish caught at sea by analysing their natural genetic code, which can then be matched back to their region or river of origin.

Dr Peter Heffernan CEO of the Marine Institute, who launched the programme in Killybegs said, “Marine Institute scientists are playing increasingly important roles in a broad range of international marine science areas that are essential to support ecosystem-based management of European marine resources. These range from monitoring the effects of harmful algal blooms to support the shellfish industry, identifying novel species and offshore production technologies for the aquaculture industry or monitoring the abundance of our traditional marine and migratory fisheries which are increasingly under pressure. SALSEA Merge is a unique partnership of geneticists, ecologists, oceanographers and ocean modellers who have pooled their talents to address a vital issue. We expect to see more programmes of this type in future.”

In addition to the EU funded FP7 SALSEA Merge programme there is also a parallel programme taking place in August of this year with Canadian and US involvement and their survey will parallel in the western Atlantic what the SALSEA Merge programme is undertaking in the east.

“An increasing proportion of salmon are dying at sea,” said Dr Ken Whelan of the Marine Institute, who is also Chairman of NASCO's International Atlantic Salmon Research Board (IASRB). “In some southern rivers on both sides of the North Atlantic wild salmon face extinction and no one fully understands why. There are many theories and far more questions, but as yet no sound research base on which rational action can be taken. That is what SALSEA-Merge is all about—to provide answers.”

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