

# Fishing for answers

Research at the scale of cGRASP, one of the largest marine biotechnology projects in the world, is possible only through the combined efforts of international leaders in salmonid genomics, pooling the resources of four countries to achieve globally significant results.

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Fish of great economic and social importance.

**MARINE BIOTECH** Salmon, trout, and the other salmonids are species of great economic and social importance to Canada and many other nations worldwide, particularly for coastal, rural and Aboriginal communities. The Consortium for Genomic Research on All Salmonids Project (cGRASP) integrates salmonid programmes in four nations – Canada, Norway, USA and the UK – into a unified research effort to develop critical genomics resources and tools that will further our understanding of salmonids, and support research in the areas of aquaculture, wild stock management and environmental protection.

Norway is the largest cGRASP partner, collaborating on a number of important project components. The Norwegian team is led by Dr. Stig Omholt, a Professor in the Department of Animal Science at the Norwegian University of Life Sciences (UMB) and the Director of the Centre for Integrative Genetics (CIGENE). After ten years as a dairy farmer, Dr. Omholt went on to various positions in industry before becoming a Professor at UMB in 1989.

His experimental research has previously centred on the honeybee, including pioneering contributions to making the honeybee a suitable laboratory animal. RNAi based gene targeting, detection of the sex locus, and using the honeybee as a model system for ageing research. He is currently researching the use of systems biology approaches to understand important aspects of Atlantic salmon biology, and the genetic phenomena in terms of nonlinear system dynamics.

In the United Kingdom, at the University of Aberdeen, Professor Chris Secombes is conducting research for cGRASP on the genomics of the salmonid immune system and responses to viral infection. Professor Secombes, Head of the School of Biological Sciences and

the Established Chair of Zoology at Aberdeen, is an internationally renowned fish immunologist. He heads the Scottish Fish Immunology Research Centre, linking expertise in fish immune gene discovery at the University with more applied interests in vaccine development and disease control of fish in aquaculture.

The United States' partnership with cGRASP is through the Department of Agriculture (USDA) and its Center for Cool and Cold Water Aquaculture. Leading this effort for the USDA is Dr. Caird Rexroad III, Acting Research Leader at the Center. Dr. Rexroad is contributing genomic data on rainbow trout including embryonic development and responses to disease challenges.

The Canadian efforts are led by Dr. William Davidson at Simon Fraser University and Dr. Ben Koop at the University of Victoria. Together, Canada, Norway, UK and USA will answer fundamental questions of economic and social importance to aquaculture, conservation and the environment. ❖

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**“cGRASP integrates salmonid programmes in four nations”**



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Microscopic images: iCAPTURE Centre for Cardiovascular and Pulmonary Research, based at Providence Health Care; Photography: Alex Waterhouse-Hayward.

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