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GRASP: Genomics Research on Atlantic Salmon Project

Status	Past
Competition	I
Sector	Fisheries
Genome Centre	Genome British Columbia
Project Leader	William Davidson and Ben Koop

Project Description

'Salmonids' are a group of fish that are of great economic and societal importance to Canada, particularly in the coastal, rural and Aboriginal communities. GRASP, the Genomics Research on Atlantic Salmon Project, was designed to provide resources for understanding the genome of Atlantic salmon.

GRASP was extremely successful in several major and practical areas. The project harnessed the power of genomics to yield practical benefits for salmonid breeding and provided a better understanding of how natural populations of salmonids adapt to local conditions, which will benefit agencies that make management decisions concerning stock assessment and harvesting plans. GRASP also developed novel methodologies that will enable more sensitive and more accurate environmental monitoring of salmonid populations.

The information we gained is benefiting numerous areas, including conservation and enhancement of wild populations, commercial harvesting, and sports fisheries. Applicable to other important salmonids such as rainbow trout and Arctic char, the knowledge is already being used by regulatory agencies to monitor gene and protein expression in a wide variety of natural and altered environments, aiding in environmental assessment and fishery management decisions.

Salmonids are also ideal organisms to examine the early impact of a genome duplication event, considered to have played a pivotal role in generating gene diversity and functional specialization. Understanding more about this evolutionary mechanism will help answer fundamental scientific questions.

The GRASP team is now recognized as a major international player in aquaculture-related genomics. Our research is already yielding practical advice for decision makers worldwide concerned with managing wild stocks, aquaculture, and the environment.

Fast Facts

Highlighted outcome: initiated and built large international consortia to solve fundamental problems in fisheries biology; first major international effort to provide free and rapid access to large amounts of salmon genomics data

Number of research personnel employed by the project: 15

Number of peer reviewed publications published: 18 papers and 79 invited presentations

Resources generated: approximately 6,000,000 base pairs of genomic sequence information are now publicly available and being annotated by GRASP personnel, serving as a strong legacy to the investment in this project. A 16K gene microarray was developed and made available to the fish community to assay gene transcription for conservation, environmental and health purposes. Over 60 labs around the world have used this gene chip

Co-funders: Province of BC