Department of Communications, Energy and Natural Resources
Roinn Cumarsáide, Fuinnimh agus Acmhainní Nádúrtha

THE DEPARTMENT OF
AGRICULTURE, FISHERIES & FOOD
AN ROINN TALMHAÍOCHTA, IASCAIGH AGUS BIA

SeaChange
Casadh na Taoide

Beaufort Marine Research Awards

Work Programme

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Ref. No.	Topic	Institution
	Fish Population Genetics	

Funded by the Irish Government under the National Development Plan (2007 – 2013)

NDP
National Development Plan 2007 - 2013

SSTI
Strategy for Science, Technology and Innovation

WORK PACKAGE No.:	1
Work Package Title:	SALSEA Merge (UCC section)
WP Leader:	T.F. Cross

Objectives of the Work Package

Objectives of Task 1:

To develop an optimum, practical, accurate and cost-effective genetic solution for determining the region or river of origin of European Atlantic salmon captured at sea, both from historical and contemporary biological material. The specific needs addressed are:

- Integration of existing and new genetic data into an optimal database to support the identification of the region and river/tributary of origin of salmon captured in the North Atlantic
- a practical electronic database, that integrates and extends existing microsatellite and mtDNA data to provide required baseline information
- a suite of molecular markers which can identify salmon to region of origin
- optimisation and validation of the database and the assignment methodology

Objectives of Task 2:

- To identify, using the methodology developed in sub task 1, the region or river origin of salmon in the samples obtained for use in sub task 3. The specific research need addressed is the determination of the region and/or river of origin of the fish samples.

Objectives of Task 3:

To merge current data from the ocean model (ROMS) with genetically-acquired data to develop a conceptual stock specific migration and ecological model for Atlantic salmon in their first year at sea. The specific research needs addressed by this work package are:

- the integration and analysis of specific stock distribution, biological and oceanographic information
- the use of new information for the advancement of models of marine ecology

Deliverables from Task 1

- D1.1 Report on integration strategy
- D1.2 Report on database structure
- D1.3 Calibration report
- D1.4 Trans-European genotype database
- D1.5 Analytically extended Trans-European genotype database
- D1.6 Spatially extended Trans-European genotype database
- D1.7 Report on temporal stability of database
- D1.8 Regional baseline samples
- D1.9 Report on micro-satellite marker regional differentiation
- D1.10 Report on nDNA SNP marker regional differentiation
- D1.11 Panel of blind test samples
- D1.12 Validation report

Deliverables from Task 2

- D1.13 Database of genetically-typed archival material (Month 30)
- D1.14 Genetic assignment of archive samples to river/region of origin (Month 30)
- D1.15 Database of genetically typed samples from marine survey (Month 30)
- D1.16 Genetic assignment of marine survey samples to river/region of origin (Month 30)

Deliverables from Task 3

- D1.17 GIS of the statistical distribution of specific stocks, or stock groups (Month 32)
- D1.18 Report and analyses describing the relationships between distribution of post smolts with physical and biological variables (Month 34)
- D1.19 Presentation of the conceptual migration and ecological model (Month 36).

WORK PACKAGE No.:	2
Work Package Title:	The use of individual assignment and mixed stock analysis to identify salmon of farmed origin in the Irish market
WP Leader:	Prof. T.F. Cross

Objectives of the Work Package

To forensically identify Atlantic salmon in the Irish market as being of either farmed or wild origin

Deliverables

- D2.1 Genotype data for five strains of farmed salmon provided by FSAI
- D2.2 Genotype data from 144 blind test samples provided by FSAI
- D2.3 Genotype data from 24 query samples of Atlantic salmon taken from the Irish market (suspected of being of farmed origin)
- D2.4 In addition, the 144 blind test samples and the 24 query samples will be tested against the Irish genetic baseline of Atlantic salmon (to include the five farmed strains provided by FSAI) to establish whether they are likely to originate as wild fish in an Irish river or if they belong to a farmed population.

WORK PACKAGE No.:	3
Work Package Title:	SNP work with Agricultural University of Norway (Norwegian Research Council)
WP Leader:	Prof. T.F. Cross

Objectives of the Work Package

1) Identify signatures of selection in farmed Atlantic salmon and
2) To determine the effective migration rate at non-neutral loci in contrast to neutral loci, in rivers at risk/not at risk from farmed escapes.

Deliverables

D4.1 A final report detailing our activities will be sent to the Norwegian Research Council during the course of the project. We are expected to attend project meetings with our Norwegian partners who will also require regular progress reports. We envisage that the results of the UCC part of this project will be published in a high profile Journal and that we will also be involved in at least some joint publications with our Norwegian partners.

WORK PACKAGE No.:	4
Work Package Title:	EIRCOD
WP Leader:	T.F. Cross

Objectives of the Work Package

1. To provide training in molecular genetic technology to personnel from NUIG Carna
2. To type Irish wild cod for extant molecular markers
3. To screen new markers in cod as they become available

Deliverables

D4.1 Molecular genetics trained personnel at NUIG Carna (month 12)

D4.2 Report on genetic structure of Irish wild cod using extant molecular markers (month 24)

D4.3 Reports on novel molecular genetic techniques in cod (annually from month 36)