



SALSEA-MERGE FP7-ENV-2007-1
Grant Agreement No 212529

Work Package 4
Deliverables - D 4.1

**Electronic database of digital scale images and
growth data (D 4.1)**

(Month 23)

Introduction

This deliverable includes two different data sets, and hence consists of two electronic databases. The two databases are derived from subtask 4.2.1 and 4.2.2, respectively, and are described for each of the two subtasks below.

Deliverable D 4.1a

Subtask 4.2.1 *Reading of scale material from WP2*

Scale reading and digital analyses will be carried out in four geographical centres, in Ireland, Norway, Finland and Iceland, on up to 15,000 historical scale samples from approximately 15 salmon stocks.

Participants: Lead – 4; Other 2, 10, 14

The first part of this deliverable (deliverable D 4.1a) is a database of digital scales images and growth data of adult Atlantic salmon. The information on individual fish and growth data derived from scales analyses of over 23,000 individuals of adult Atlantic salmon from seven rivers located in six countries, and references to the corresponding scale images are stored in a common excel database (Table 4.1.1). Except 11 extra field names (see Deliverable D 4.2), this database is identical to Deliverable D 4.2.

Table D 4.1.1. Description of the data and the associated parameters recorded for each fish in deliverable D 4.1a.

Field name	Data type	Description
REF	Number	Unique Sample identifier number
Country	Text	Key parameter in the database (string)
Country_Code	Number	Unique Country identifier number
River	Text	Key parameter in the database (string)
River2	Number	River name abbreviated to 3 characters
River_Code	Number	Unique River identifier number
Year of capture	Number	Key parameter in the database (integer)
Reference number	Number	Key parameter in the database (integer)
Alternative numbering	Number	Other kinds of numbering of the scale samples
Image name	Text	Name of the file of the image of the scale
Catch_date	Date	Capture date
Smolt_year	Number	Integer
Type	Number	1 = wild, 2 = escapee from farms, 3 = stocked fish, 4 = either 2 or 3, 999 = uncertain
Length	Number	Length in mm
Weight	Number	Weight in g
Sex	Number	Male = 1; female = 2

Smolt age	Number	Smolt age (integer). If uncertain, leave blank
Sea age	Number	Sea age (integer). If uncertain, remove the sample from the spreadsheet
Sea age2	Number	Sea age ("1+" are re classified as "1")
Comments	Text	Any comments relevant to the scale analysis
Freshwater growth	Number	Distance (in scale) from origo to the outermost freshwater circulus (including freshwater runout)
1SW	Number	Growth first year at sea (in scale)
2SW	Number	Growth second year at sea (in scale)
3SW	Number	Growth third year at sea (in scale)
4SW	Number	Growth fourth year at sea (in scale)
Scale radius	Number	Sum of Fw growth plus all Cs or Fw growth + 1SW + 2SW + 3SW + 4SW
C1	Number	Distance (in scale) between the last freshwater and first marine circuli
C2	Number	Distance (in scale) between the first and second marine circuli
C3	Number	Distance (in scale) between the x and y marine circuli
C4	Number	Distance (in scale) between the x and y marine circuli
C5	Number	Distance (in scale) between the x and y marine circuli
C6	Number	Distance (in scale) between the x and y marine circuli
C7	Number	Distance (in scale) between the x and y marine circuli
C8
C9
C10
C11
C12		

Deliverable D 4.1b

Subtask 4.2.2 *Reading of scale samples collected in expeditions*

Contemporary scales collected in during the marine sampling will be digitally processed and information made available for WP 4 and 5.

Participants: Lead – 4; Other 2, 10, 14

The second part of this deliverable (deliverable D 4.1b) is a database of growth data derived from scale samples of Atlantic salmon (post-smolts and older fish) collected during the expeditions, and the corresponding scale and otolith images. These data are included as an integrated part of the SALSEA_PGNAPES database (see deliverable D 2.4). This Access database contains two tables related to salmon growth (SALMON_Scales and

SALMON_Circuli_growth) which are shown in Fig. D 4.1. An overview over the whole database and relationships between the two growth tables and the rest of the database are given in deliverable D 2.4.

Figure D 4.1. SALSEA _WGNAPES _scales: Relationships between the SALMON_Biology table and the added scale-growth tables (SALMON_Scales, SALMON_Circuli_growth).

The image shows a screenshot of a database management tool interface. On the left, a tree view shows the database structure with folders for SALMON_Circuli_growth, SALMON_Pictures, SALMON_Scales, Biology, Logbook, SALMON_sampling, and Species. The main area displays two tables: SALMON_Scales and SALMON_Circuli_growth. Each table is shown with its columns, data types, and descriptions.

Feltnavn	Datatype	Beskrivelse
Country	Tekst	Post code (or ICES list)
Vessel	Tekst	Call sign (or ICES list)
Cruise	Tekst	Unique cruse identifier
Year	Tal	Four digits
StationNo	Tekst	National station number, link to Station in BIOLOGY
SType	Tekst	CTD, WP2, MIK, TRAWL, PDYP, PBLÅ, PTRAWL, ..., link to SType in StationTypes
Species	Tekst	3 character code, libk to SpeciesID in SPECIES
FishNo	Tekst	Fish/record number, link to Recnr in BIOLOGY
GrowthNO	Tekst	Sample number used for growth analyses (key)
Scale image name	Tekst	Name of the file where the image of the scale is stored
Otolith image name	Tekst	Name of the file where the image of the otolith is stored
Location of scale sample	Tal	A number between 1 and 22, indicating the location of the fish where the scale has been taken. 999 = ur
Scale quality	Tal	A number between 1 and 3, indicating the quality of the scale for detailed growth analyses, focusing on
Type_text	Tekst	Wild, farmed (escapee from the fish farm industry), stocked (for stock enhancement or sea ranching), r
Type_No	Tal	Similar to Type_text, but in numbers: wild = 1; farmed = 2; stocked = 3; reared = 4; unknown = 999
SmoltAge_Summary	Tal	Smolt age (integers only) derived from all information available. In cases of discrepancy between scale:
SmoltAge_Scale	Tekst	Smolt age derived from scales. If uncertain, describe the uncertainty
SmoltAge_Otolith	Tekst	Smolt age derived from otoliths. If uncertain, describe the uncertainty
Sea age	Tal	Number of winters at sea
Comments	Tekst	Any comments relevant to age and growth analyses
Smolt length	Tal	Backcalculated smolt length from the scale
Scale radius	Tal	Total length of the scale from origo to the scale edge
NoCirculi	Tal	Number of circuli in the marine part of the scale

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Country	Tekst	Post code, link to Country in BIOLOGY
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Cruise	Tekst	Unique cruse identifier, link to Cruise in BIOLOGY
Year	Tal	Four digits, link to Year in BIOLOGY
StationNo	Tekst	National station number, link to Station in BIOLOGY
SType	Tekst	CTD, WP2, MIK, TRAWL, PDYP, PBLÅ, PTRAWL, ..., link to SType in StationTypes
Species	Tekst	3 character code, libk to SpeciesID in SPECIES
FishNo	Tekst	Fish/record number, link to Recnr in BIOLOGY
GrowthNO	Tekst	
C_No	Tal	Circuli number, C1 is the first circuli growth in seawater
Growth	Tal	Circuli measurements, mm (growth between to consecutive circuli in scale)

