

Salmon Research at GWCT

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Frome – record-breaking chalk stream

40 years (!) salmon counting

Longest run of salmon count data in Europe



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Frome – record-breaking chalk stream

40 years (!) salmon counting

Longest run of salmon count data in Europe

11 years individual salmon data

Most instrumented chalk stream in Europe



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40 years (!) salmon counting



- Returning adult counts: 1973 – 2013 = 40 years!



40 years (!) salmon counting

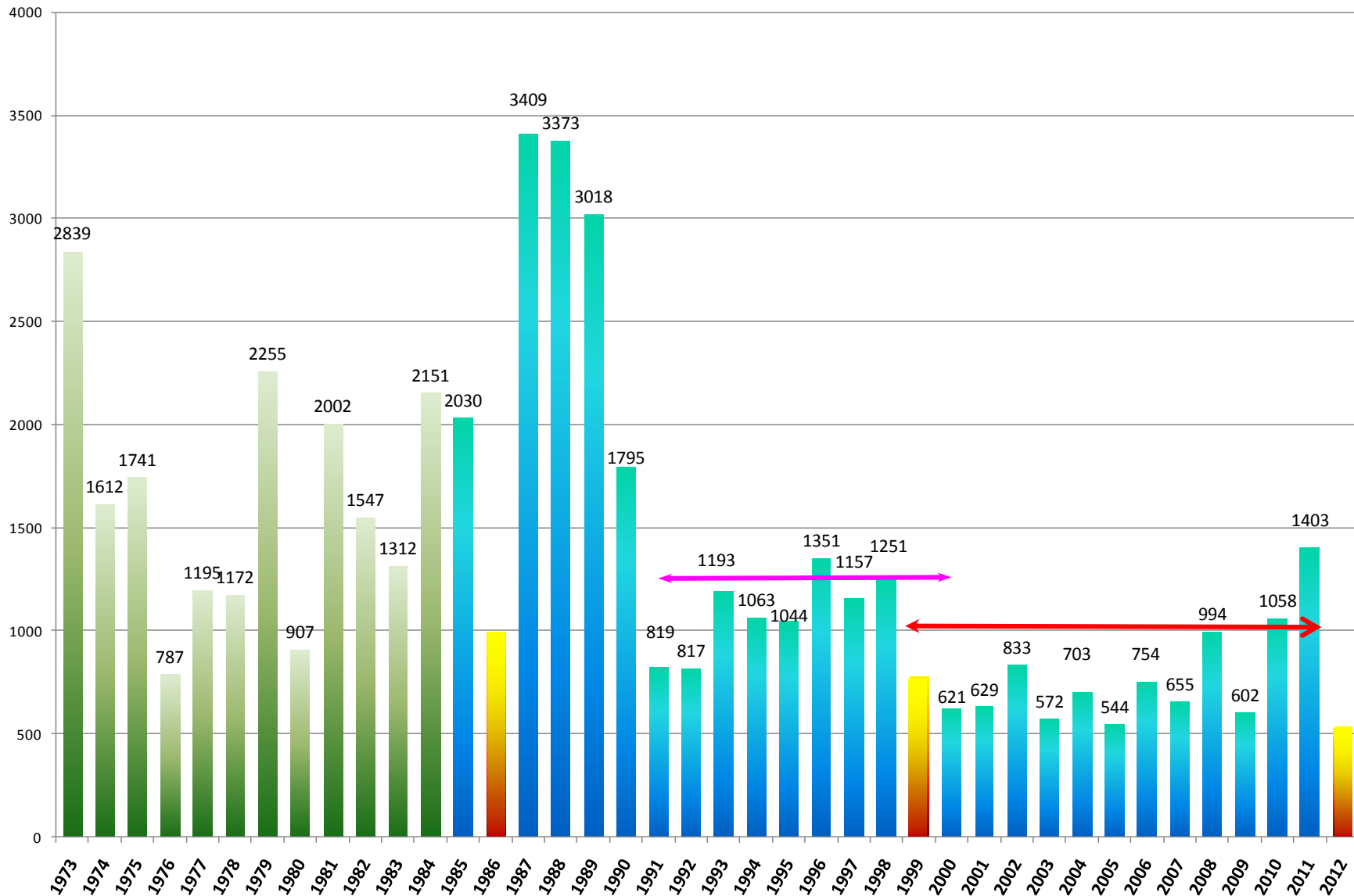


- Returning adult counts: 1973 – 2013 = 40 years!
- Data gives us:
 - Spawning stock estimate
 - Index of population trends



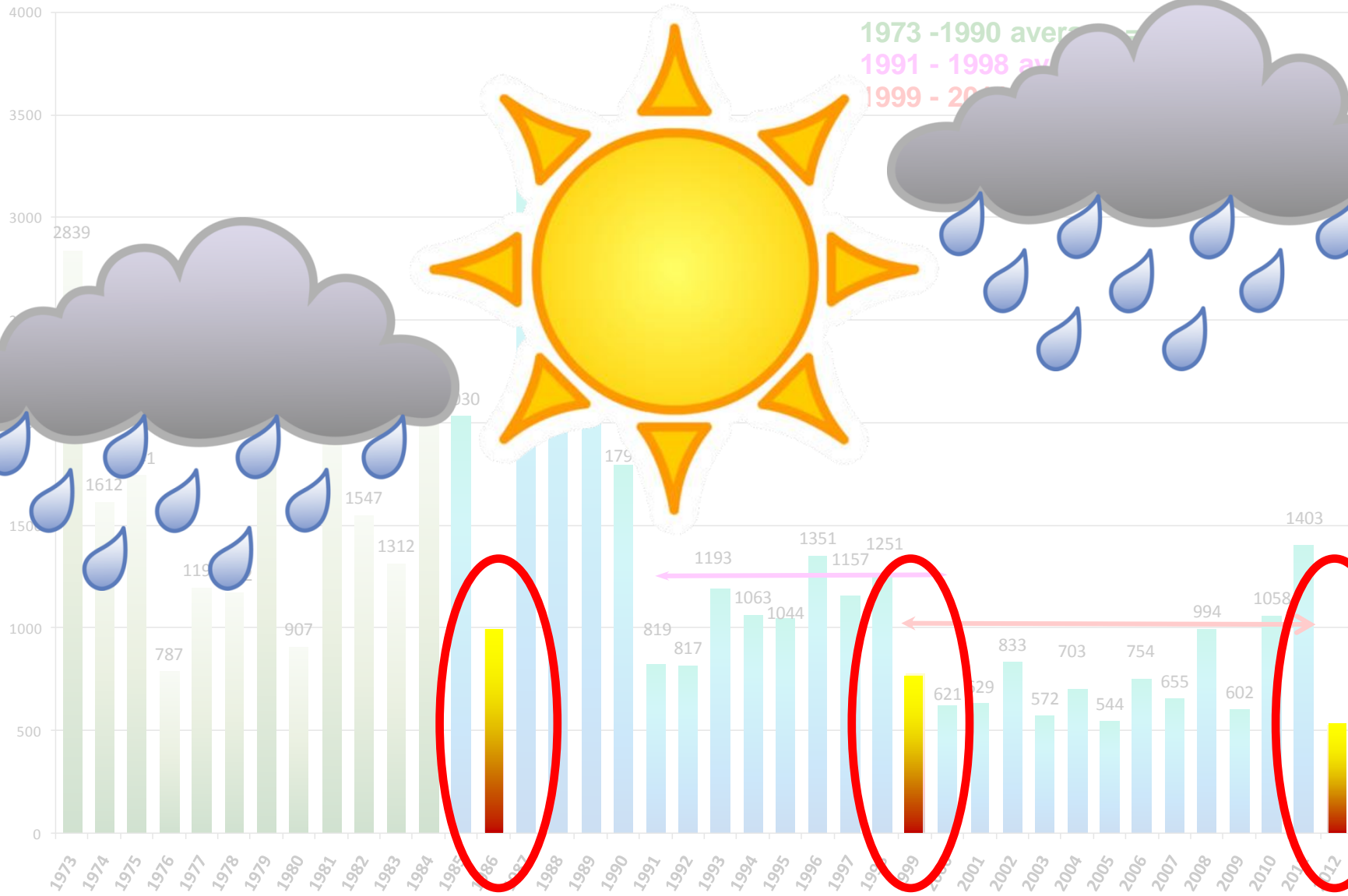
Nett salmon numbers

■ Estimated Nett No.
 ■ Nett No.
 ■ Minimum No.



Nett salmon numbers

■ Estimated Nett No. ■ Nett No. ■ Minimum No.



2012 – a sombre record



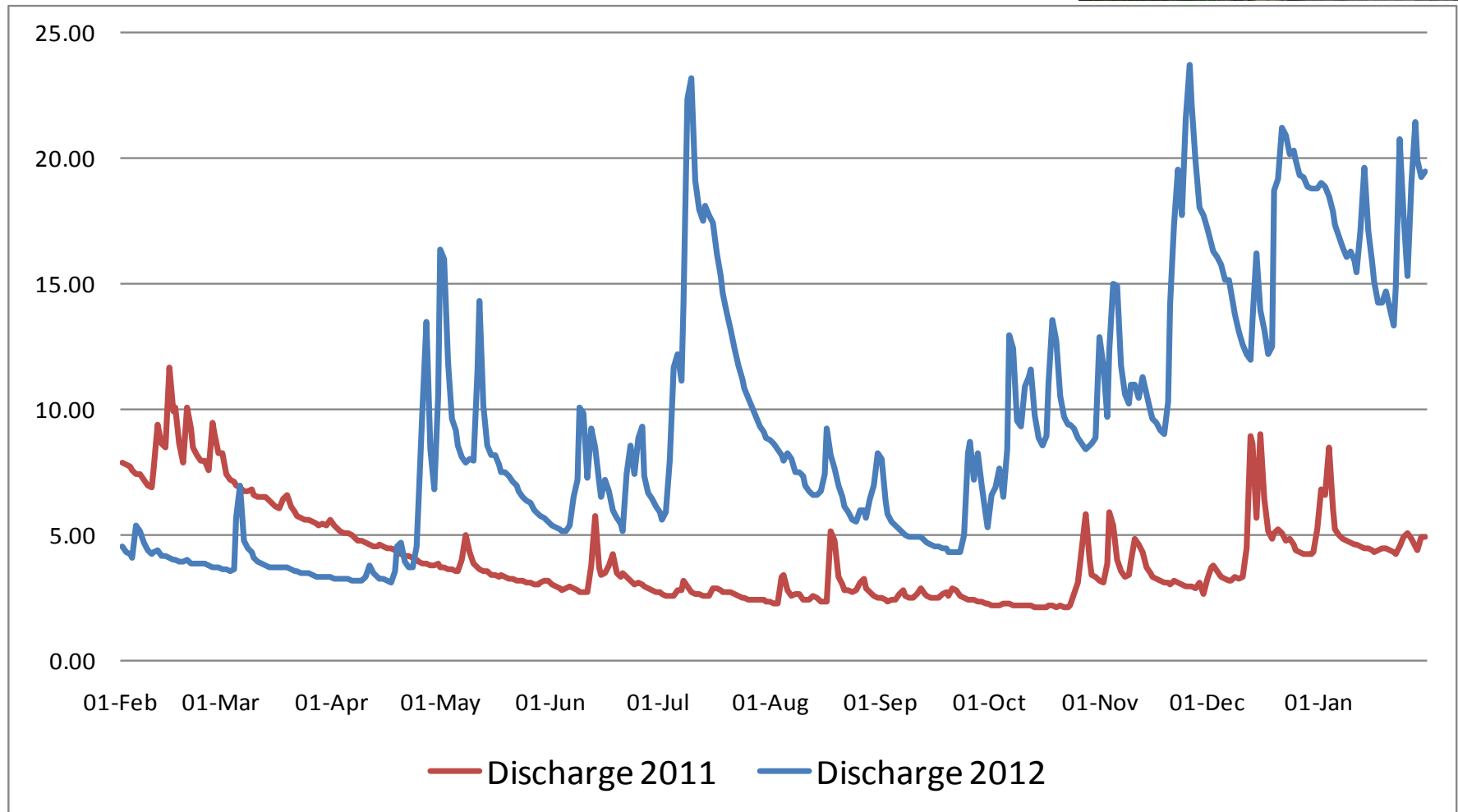
2012 – a sombre record



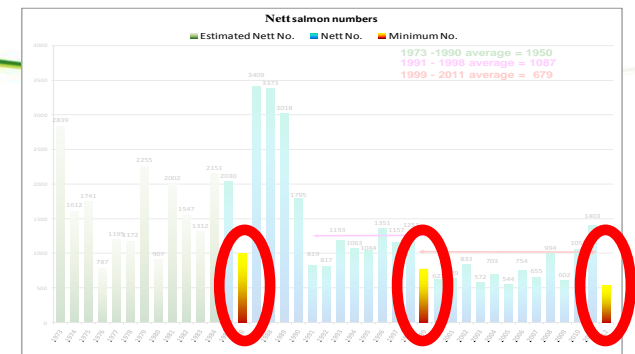
2012 – a sombre record



2012 – a sombre record



Project MorFish



- Aim: to derive 40 years of statistically defensible adult estimates
- Analysis to account for:
 - Floods and droughts
 - Power cuts
 - Changes in data collection



European Union
European Regional Development Fund

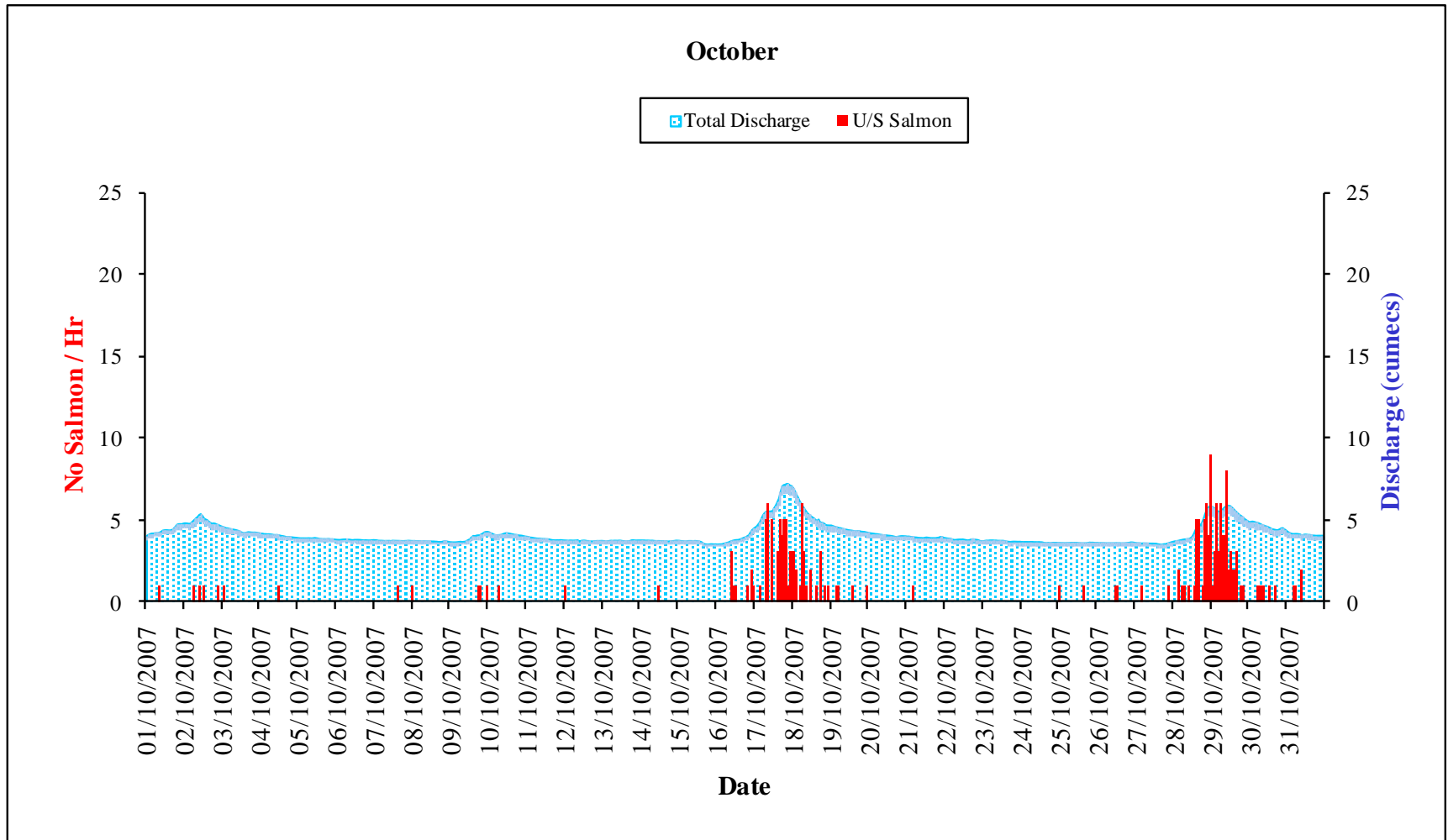
40 years (!) salmon counting



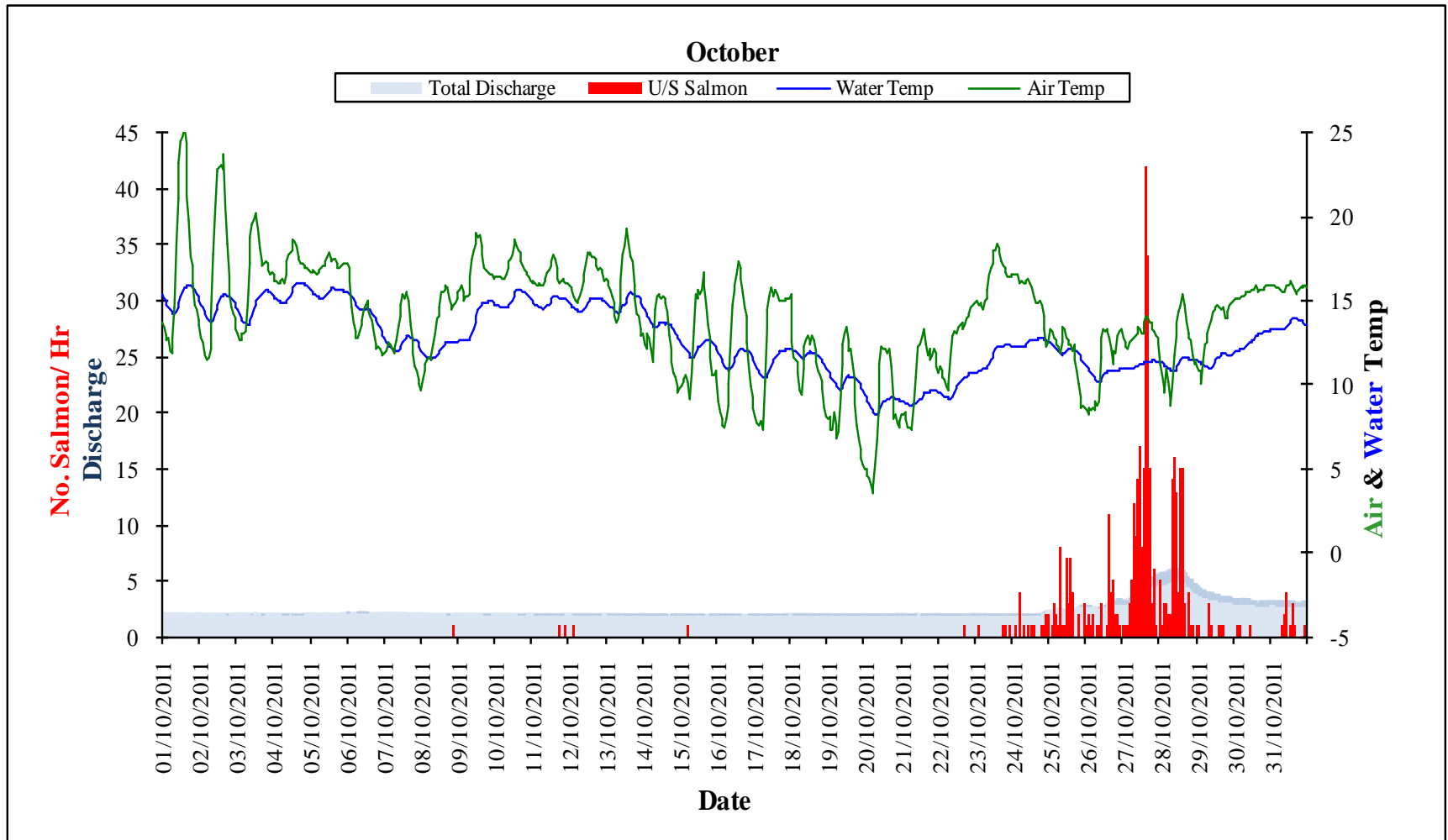
- Data gives us:
 - Migration timing
 - Salmon lengths



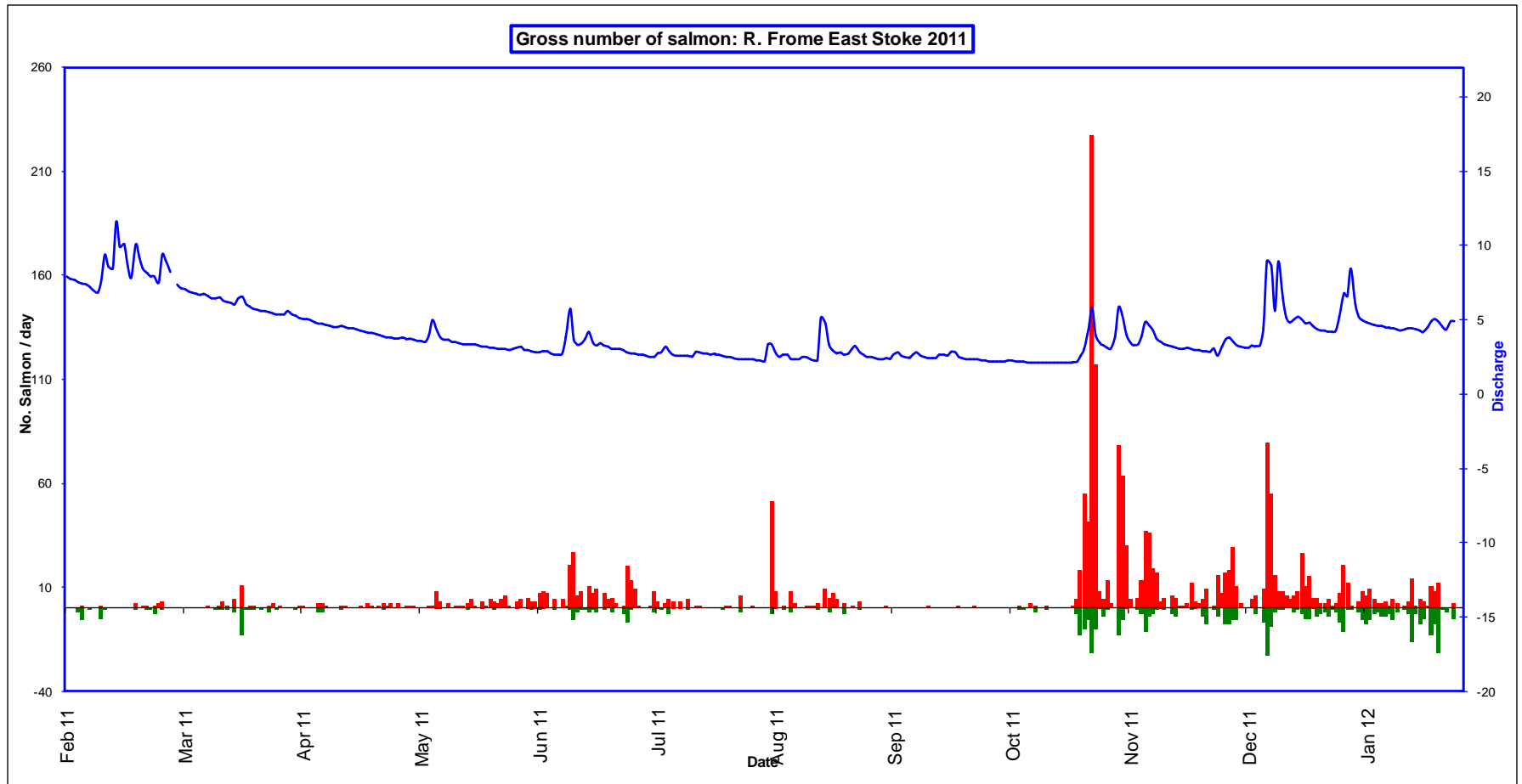
Hourly movement pattern – Oct 2007



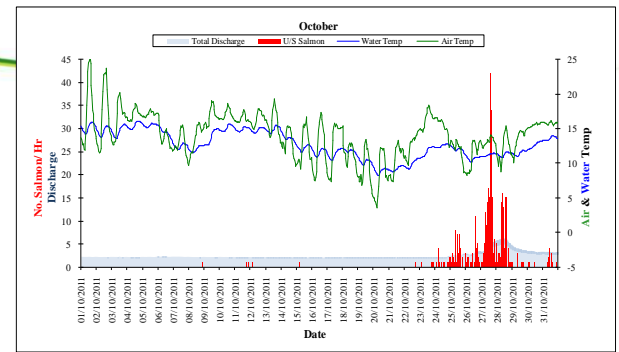
Hourly movement pattern – Oct 2011



Daily migration pattern



Project MorFish



- Aim: to understand drivers of changes in salmon abundance over time
- Analysis to account for:
 - Flow
 - Temperature
 - Freshwater and marine survival



European Union
European Regional Development Fund

Salmon lengths



1974: 110cm



2006: 110cm



2010: 110cm

Salmon lengths



2010: 110cm



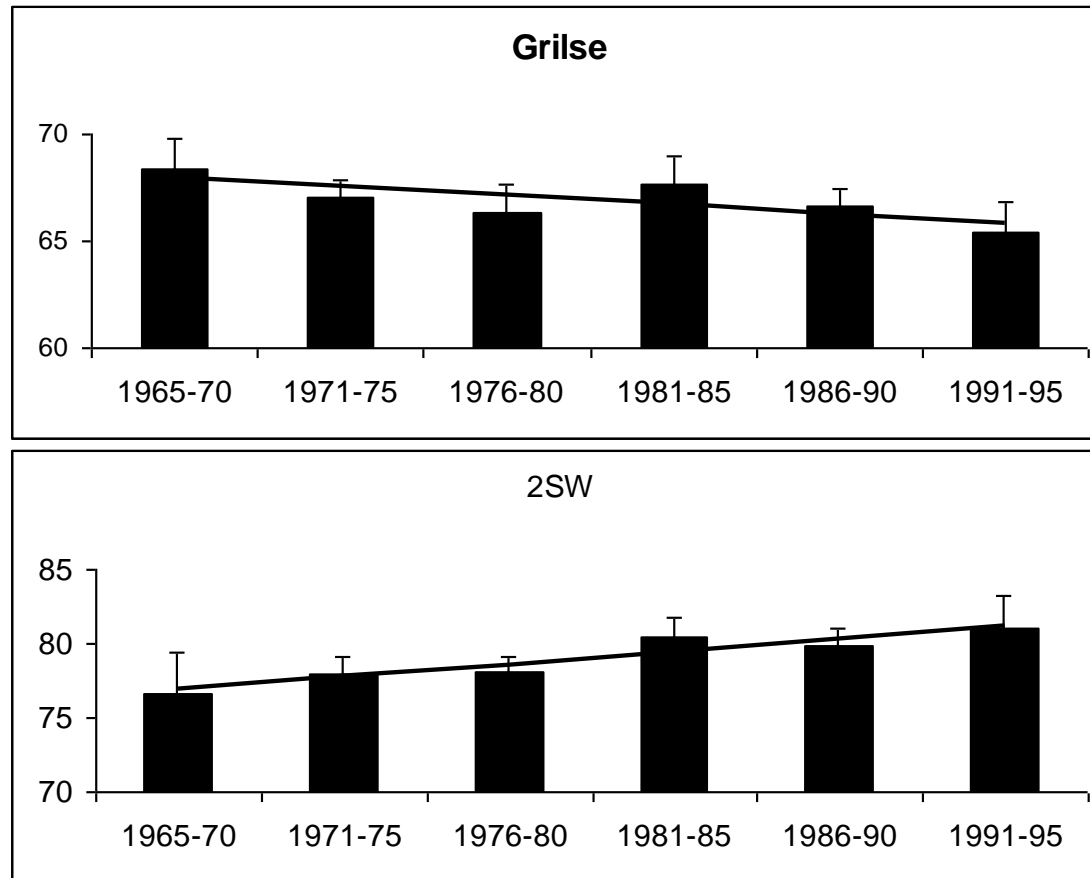
Last week!



Last week!



Trends in salmon lengths: 1965 – 1995



11 years individual salmon data



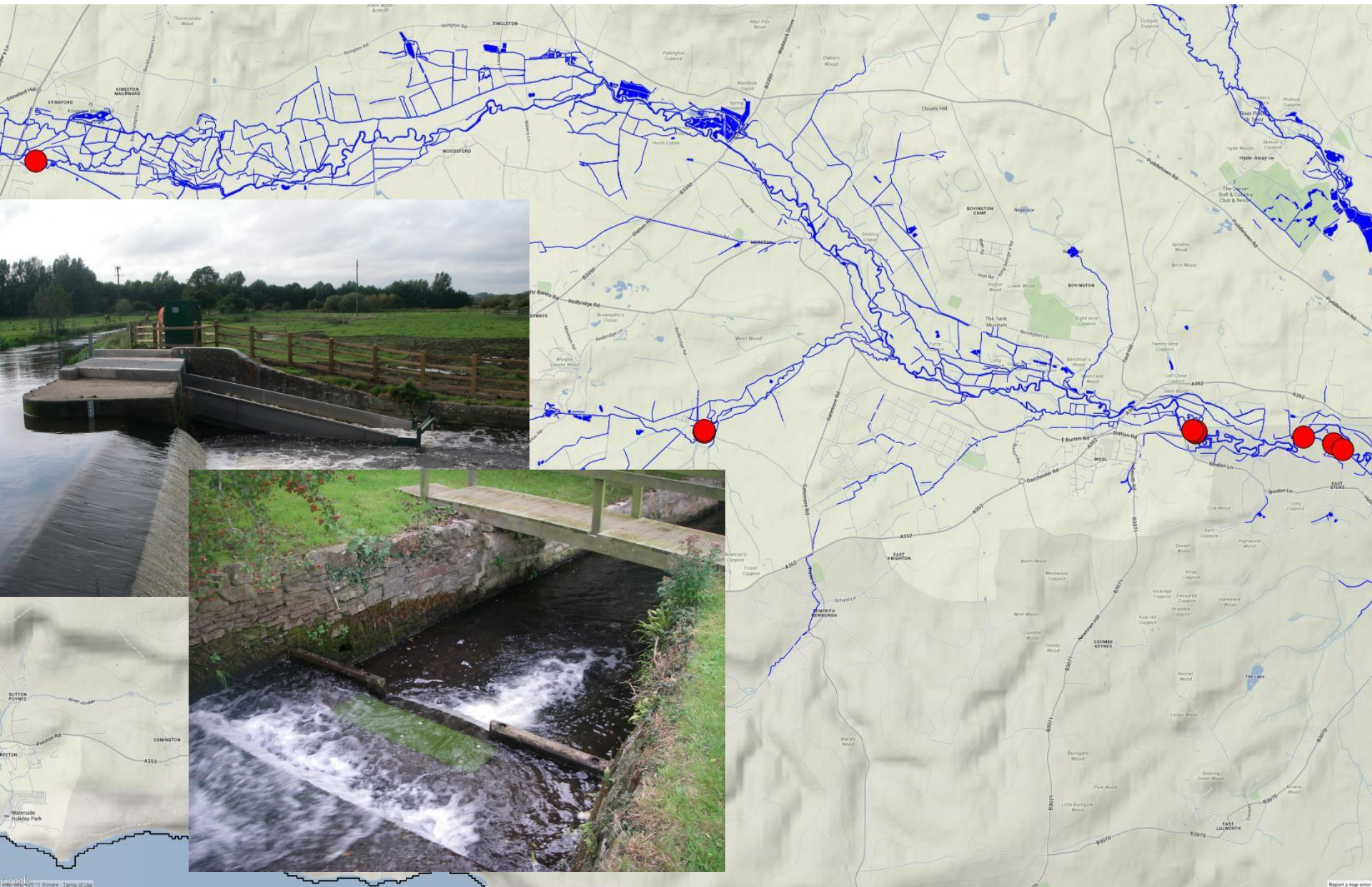
- PIT tagged salmon: 2002 – 2013 = 11 years



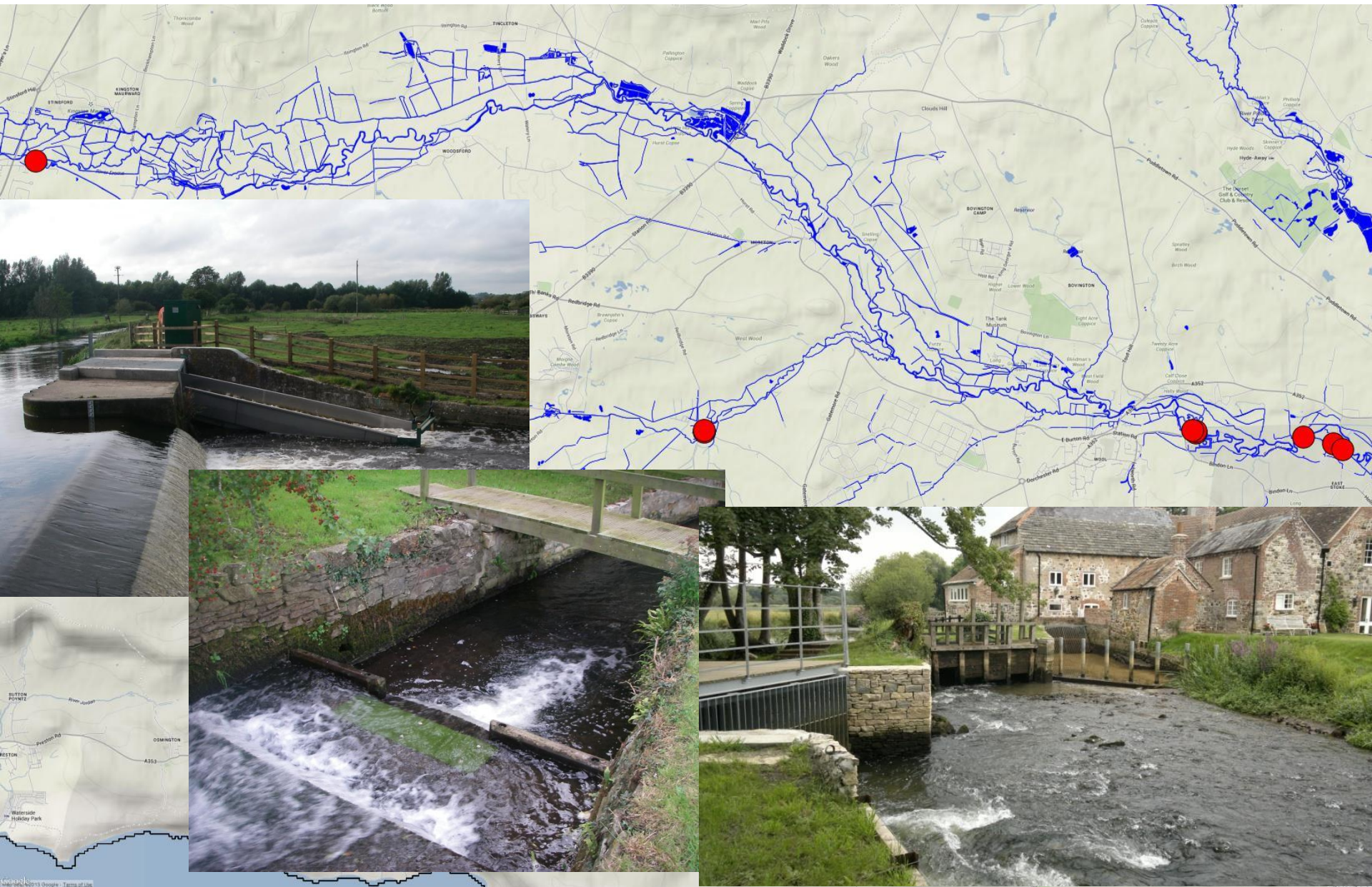
PIT tagging



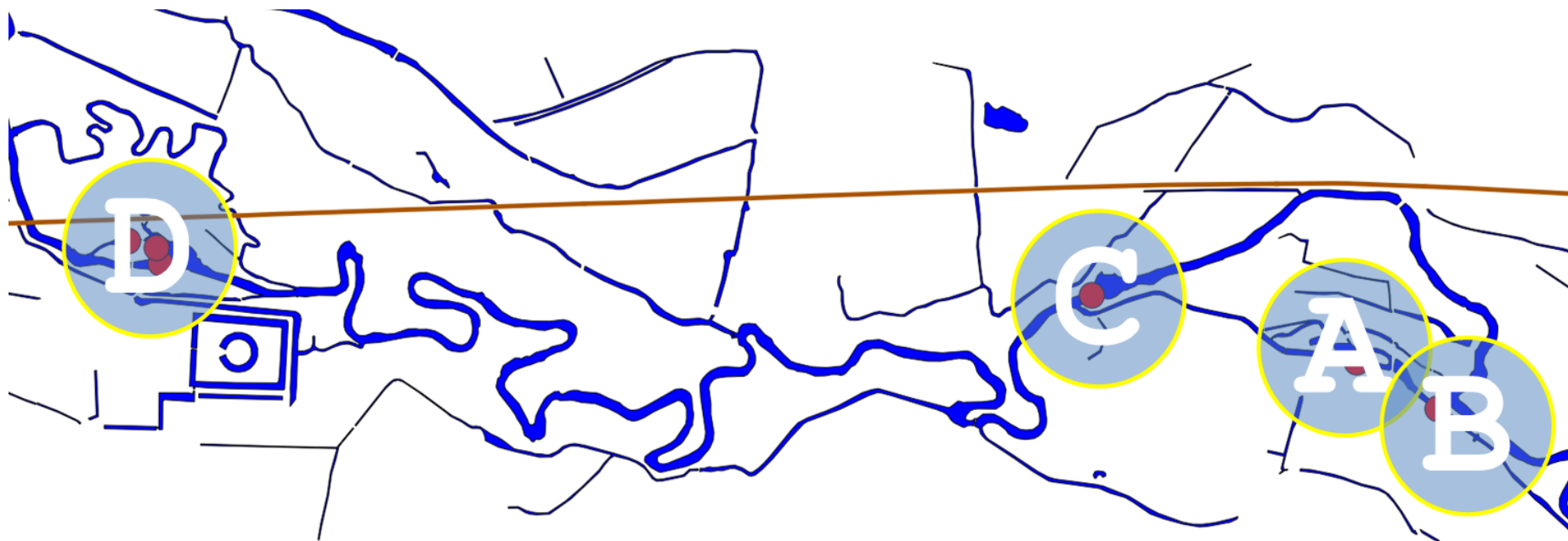
Frome PIT reader system



Frome PIT reader system



East Stoke



A = Fluvarium reader

B = Millstream reader

C = Main river reader

D = Bindon Mill readers



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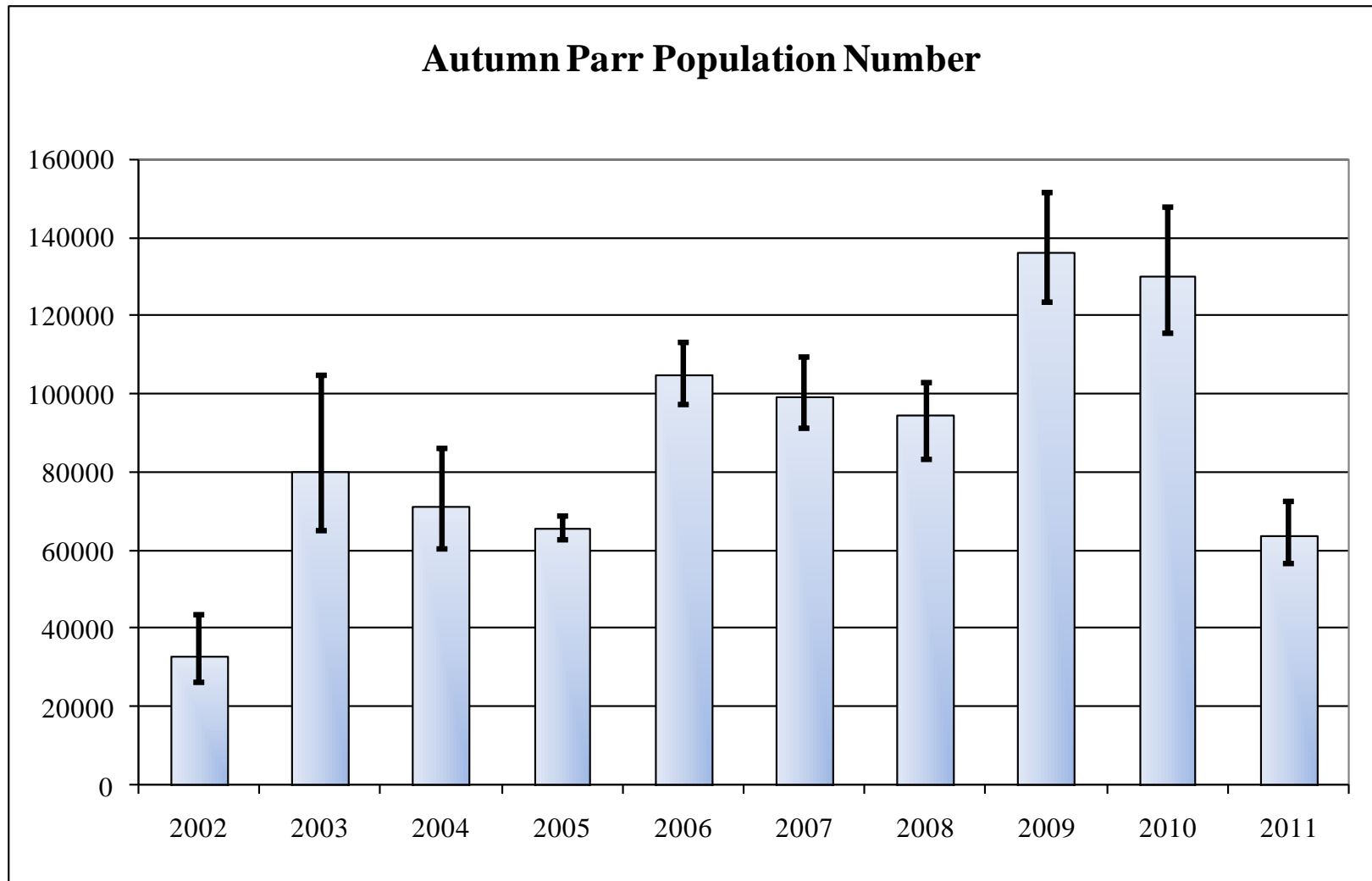
11 years individual salmon data



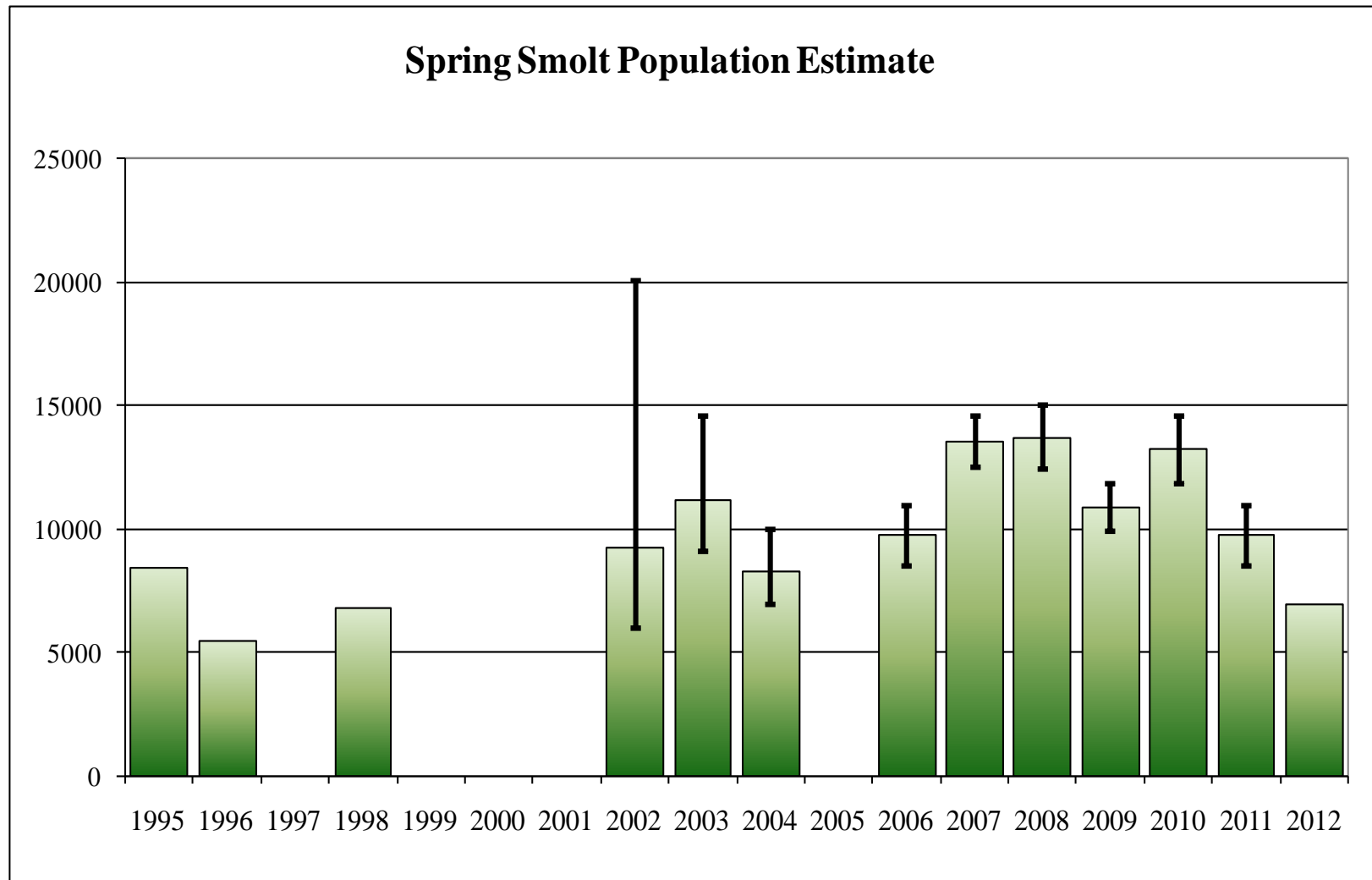
- PIT tagged salmon: 2002 – 2013 = 11 years
- Data gives us:
 - Precise smolt population estimates
 - Index of parr population trends



Salmon parr population estimates



Salmon smolt population estimates



11 years individual salmon data

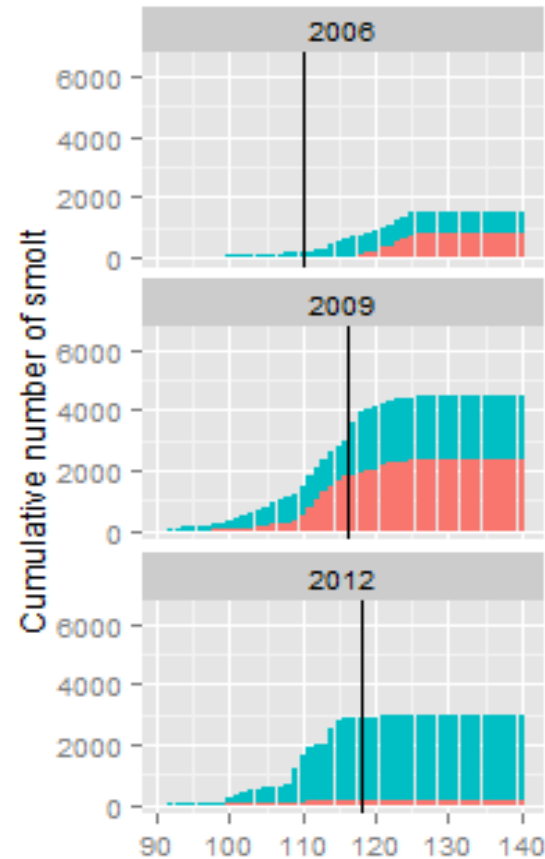
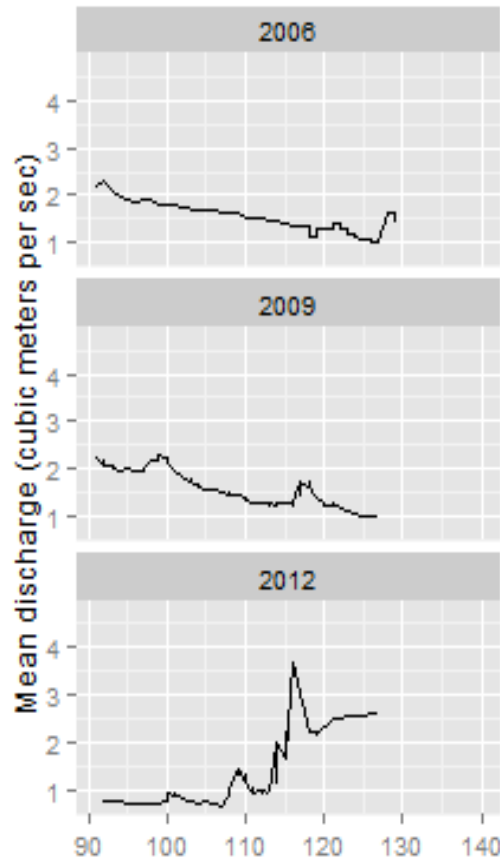


- Data gives us:
 - Migration timing
 - Individual growth and mortality
 - So much more....!



Smolt migration timing

Flow

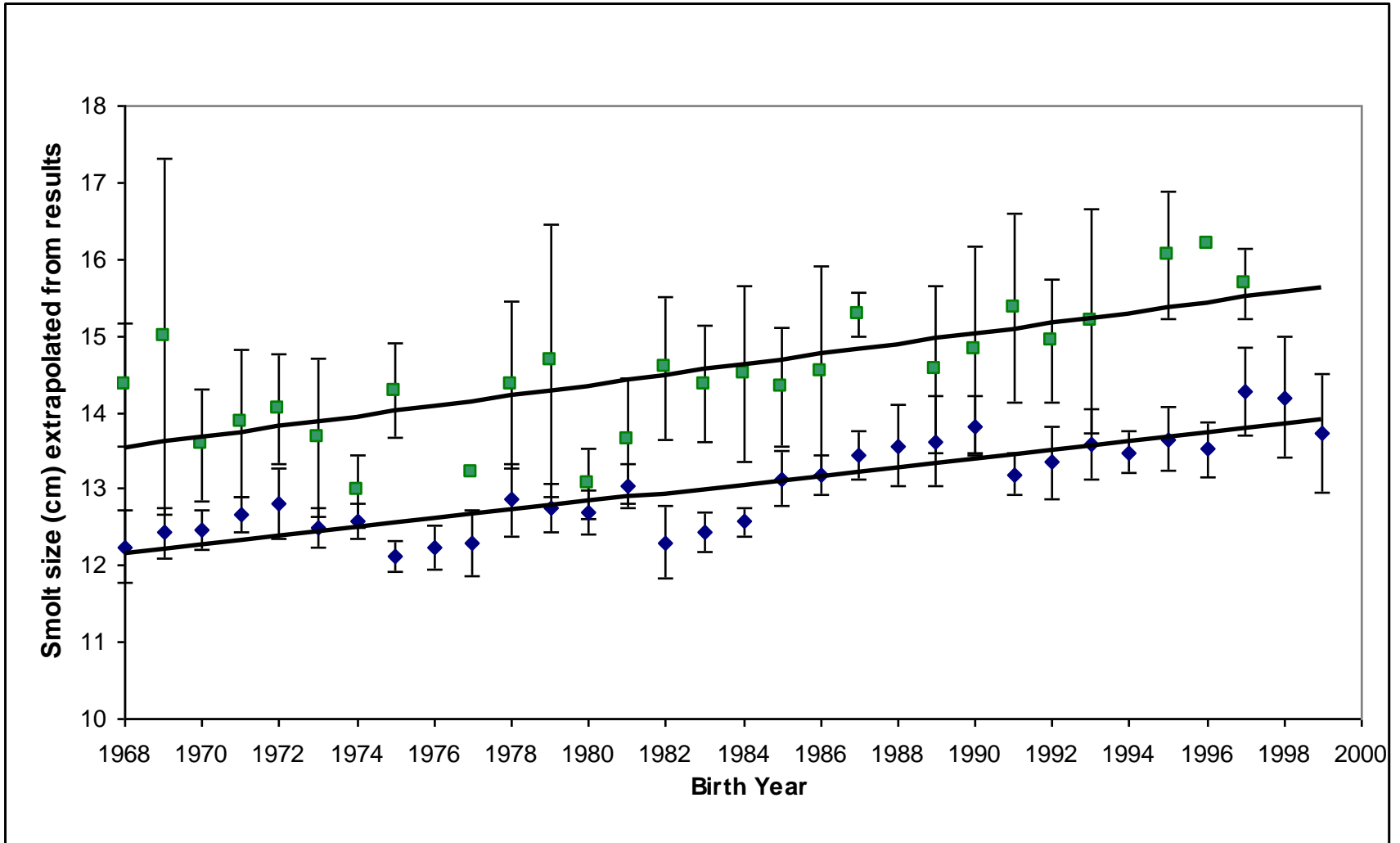


Day or
Night

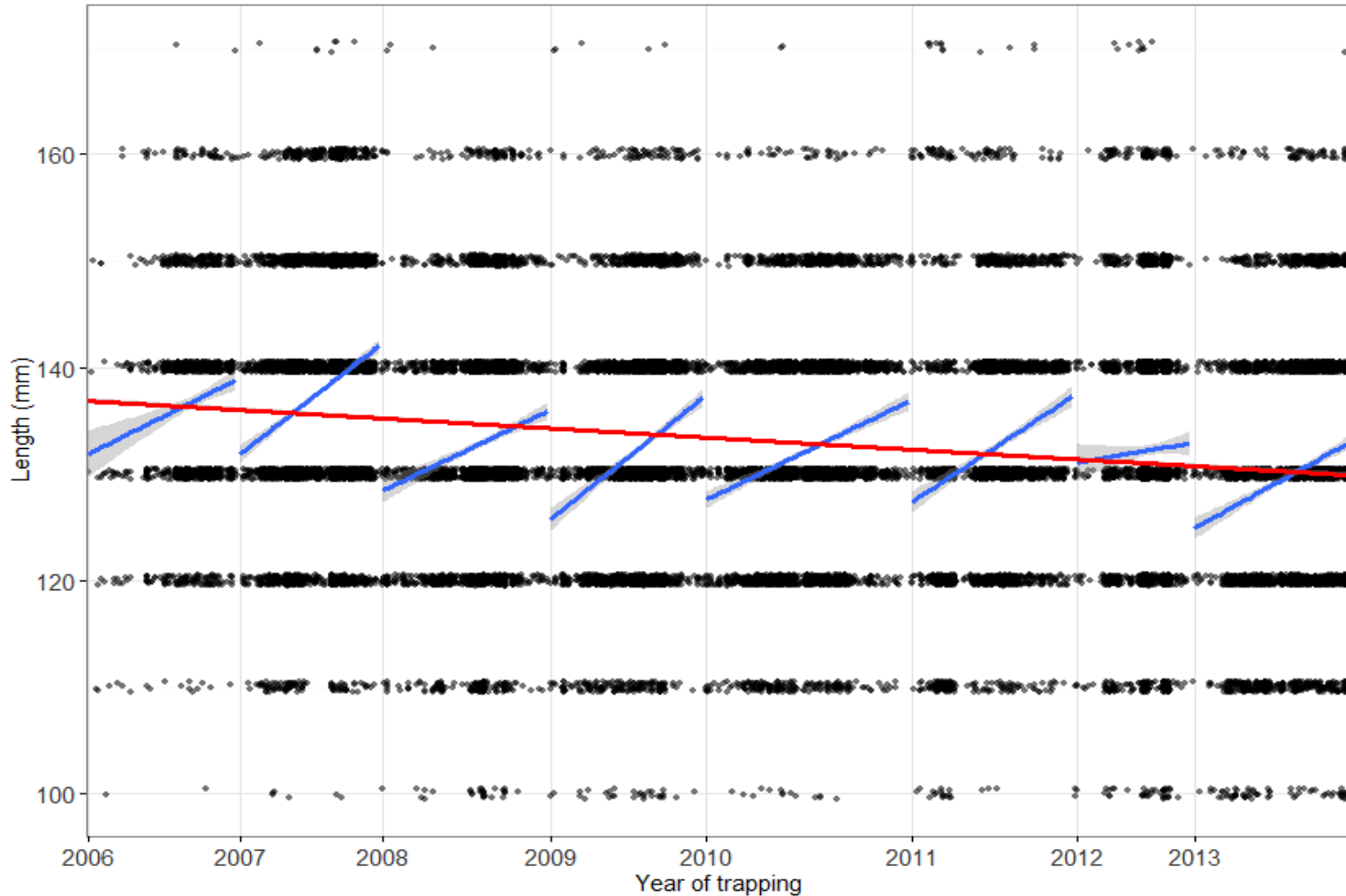


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Smolt lengths: 1968 – 2000



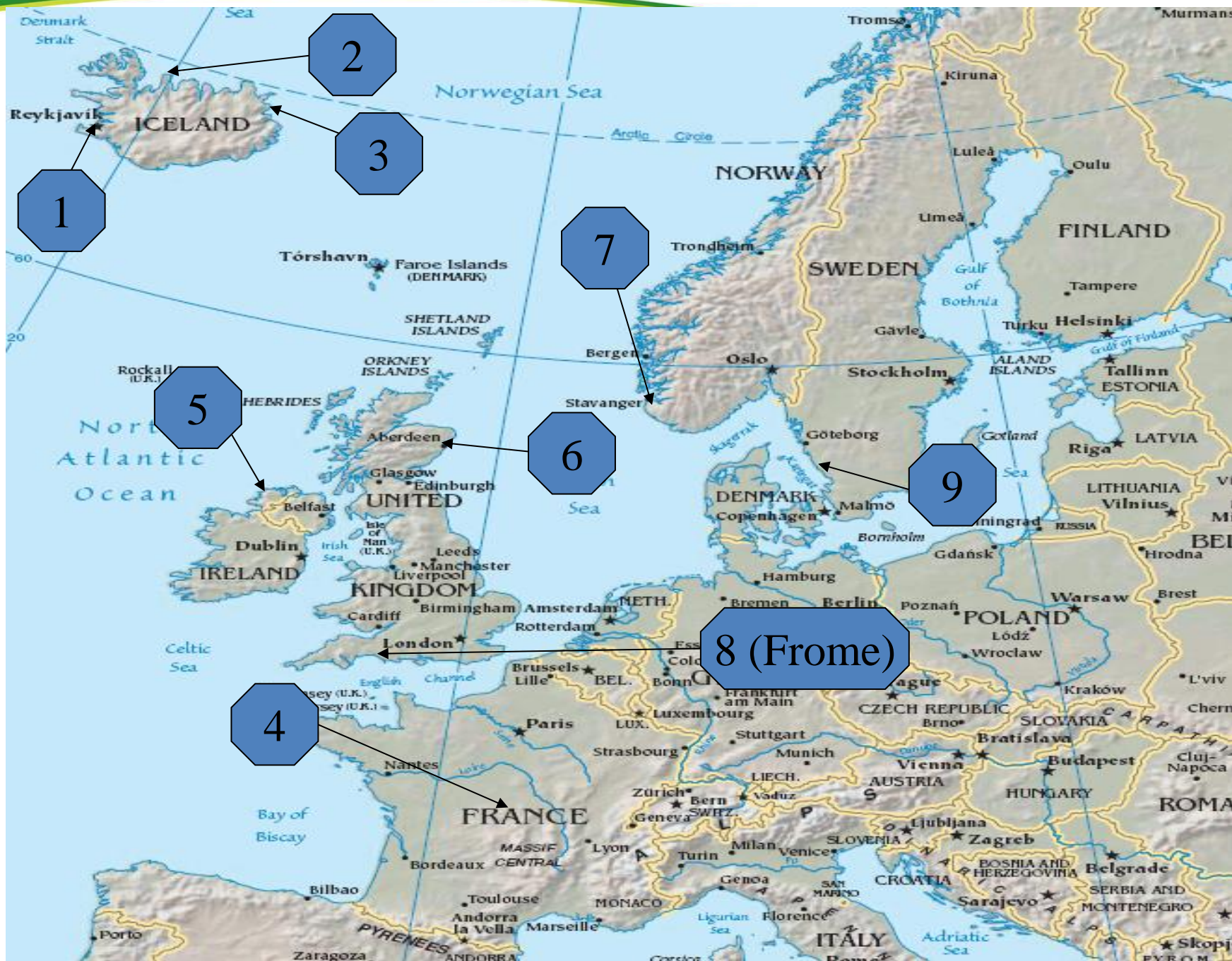
Smolt lengths: 2006 – 2013



Summary

- Frome is internationally important chalk stream
 - Internationally important salmon datasets
 - Part of international network of “index rivers”





Summary

- Frome is internationally important chalk stream
 - Internationally important salmon datasets
 - Part of international network of “index rivers”
- Big plans for 2014!





Merry Christmas

From the GWCT & INRA

<http://www.gwct.org.uk/salmonreport>



INRA
SCIENCE & IMPACT



Game & Wildlife
CONSERVATION TRUST



European Union
European Regional Development Fund

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Side view camera – Salmon



Side view camera – Sea Trout

