The Wye & Usk FOUNDATION

registered charity no. 1080319

**Note for Usk Local Fisheries Group Meeting – 23 November 2016**

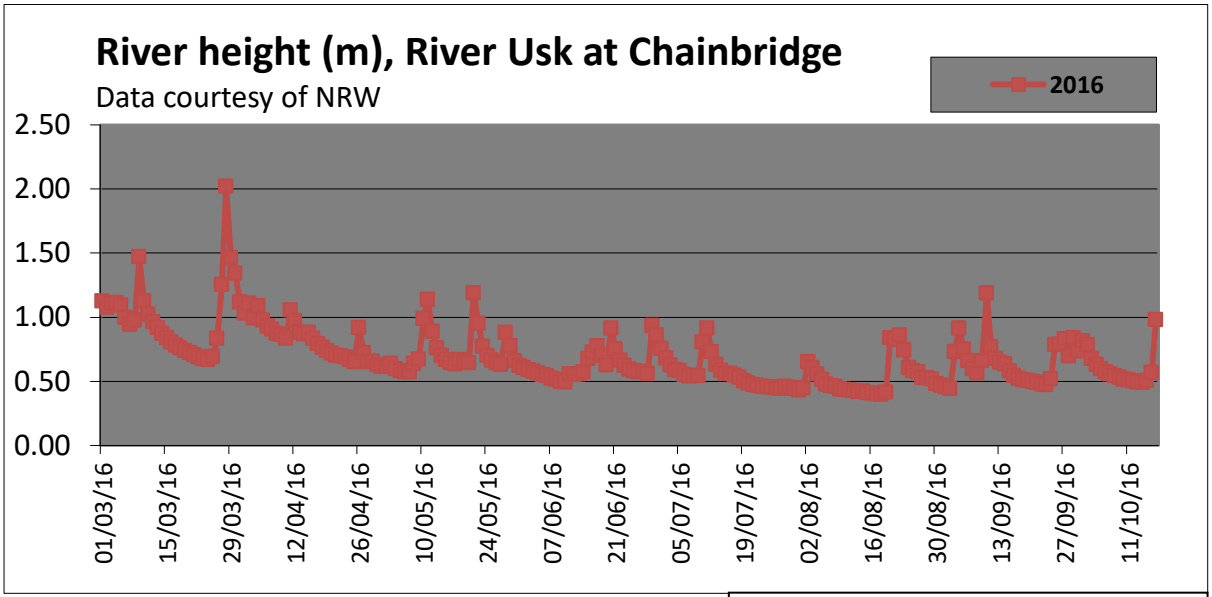
**Salmon rod catch and stock status on the River Usk 2016**

Guy Mawle

**Summary:**

- River flows in the fishing season were fairly typical. Small spates aided by reduced abstraction gave opportunities at regular intervals for salmon to enter the river.
- Based on catches at index fisheries, the declared catch for 2016 is predicted to be between 700 and 1000 and probably about 800, the best catch since 2012.
- The improvement was due mainly to catches of larger fish in the first half of the season.
- Although stock status, based on catches, is slightly improved, future egg deposition is still likely to be inadequate.
- This concern is reinforced by poor levels of juvenile salmon in recent years especially in 2016.

1.1 Other than one large spate in late March, there were no extreme flows, high or low, during the 2016 fishing season. Rather there was a succession of small to medium sized spates.




1.2 Cumulative gauge height at Chainbridge in 2016 was a bit higher than usual in March and a bit lower than usual in August and October. Otherwise it was fairly typical of those over the previous ten years.

| | As % of 10 year median |
|---|---|
| March | 115% |
| April | 107% |
| May | 103% |
| June | 105% |
| July | 109% |
| August | 84% |
| September | 106% |
| October | 90% |

1.3 Welsh Water has been preparing for major reductions in its licensed reductions from the Usk in the spring and summer following work with the Wye & Usk Foundation, Natural Resources Wales and the Canal and Rivers Trust. In the spring (April to June), Welsh Water only abstracted at weekends at the Prioress Mill pumping station, in line with its practice in 2015, leaving flows unabstracted from about 1630 hours on Monday to about 1930 hours on Friday. Even at the weekend, pumping was continuous so there were no large reductions in river flow at night.

1.4 As a 'summer trial' for their future licences, Welsh Water also voluntarily reduced pumping to a low level from July to early autumn. This abstraction was well below the maximum permitted under their current licence though still above that anticipated for under new licences being agreed with NRW.

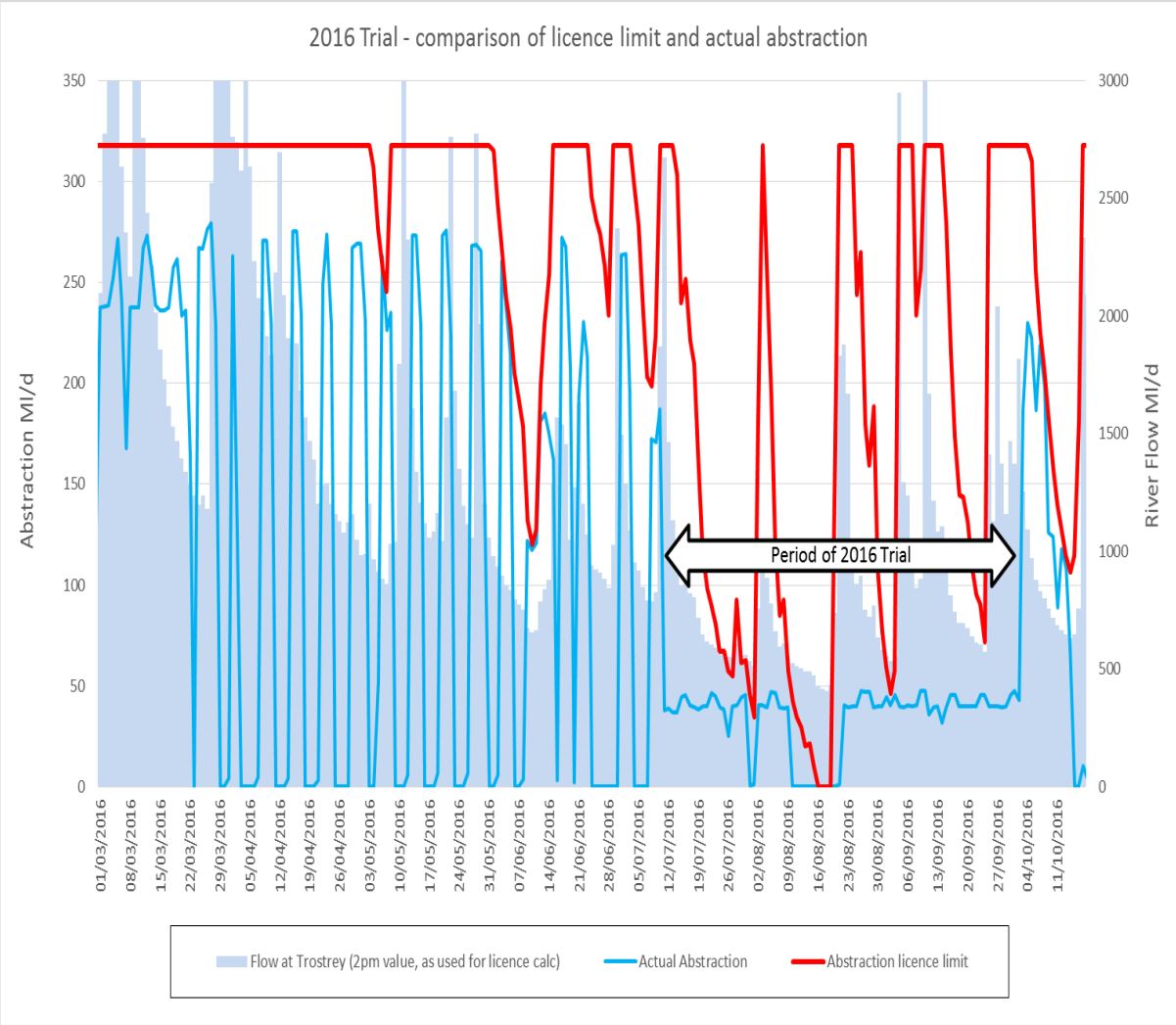


Figure courtesy of Welsh Water

1.5 These changes in the abstraction regime provided better flows downstream of Usk and into the estuary for the migration of both smolts and adult salmon.

## 2. Salmon rod catch

2.1 **Season totals:** Catches were known at the end of the season for the usual 'Index fisheries' in the middle and lower reaches, i.e. Upper Llangybi; Lower Llangybi (from David Addams-Williams); three Merthyr Tydfil AA fisheries (from Gary Davies); Monkswood (from Helen Harrison); and Llanover (from Ross Murray). Together these totalled 314 salmon, 20 percent higher than the 2015 catch at these fisheries and the best year since 2012.

2.2 Salmon licence holders are required to make individual catch returns to NRW and the Environment Agency by the end of December. Not all do, but these 'Declared' catches are usually used by NRW, with some adjustment, to assess the strength of the run. The expected declared catch in 2016 can be estimated using the previous ratio of the catch at the Index fisheries to the Declared catch. The estimate for 2016 was made using the average and range for the five years 2010 to 2014. The declared catch is predicted to be between 700 and 1000 and probably about 800.

| | Salmon catch Index fisheries | Declared Usk | Proportion of Usk catch |
|---|---|---|---|
| 2008 | 622 | 1156 | 54% |
| 2009 | 216 | 491 | 44% |
| 2010 | 284 | 580 | 49% |
| 2011 | 250 | 707 | 35% |
| 2012 | 483 | 1014 | 48% |
| 2013 | 228 | 543 | 42% |
| 2014 | 179 | 421 | 43% |
| 2015 | 285 | 559* | 51% |
| 2016 | 341 | Predicted: 793 (696-974) | Assumed 43% (48% to 35%) |

***** This may be less reliable than usual.

2.3 Incomplete catch returns to Isca Angling Club show that the 2016 rod catch for its four fisheries will be over 150 salmon, the best year since 2008.

2.4 The early run of larger salmon (multi-sea-winter fish) was stronger than usual while the late run, comprising a large proportion of grilse, was comparatively weak, as demonstrated by the seasonal distribution of catches at Upper Llangybi Fishery.

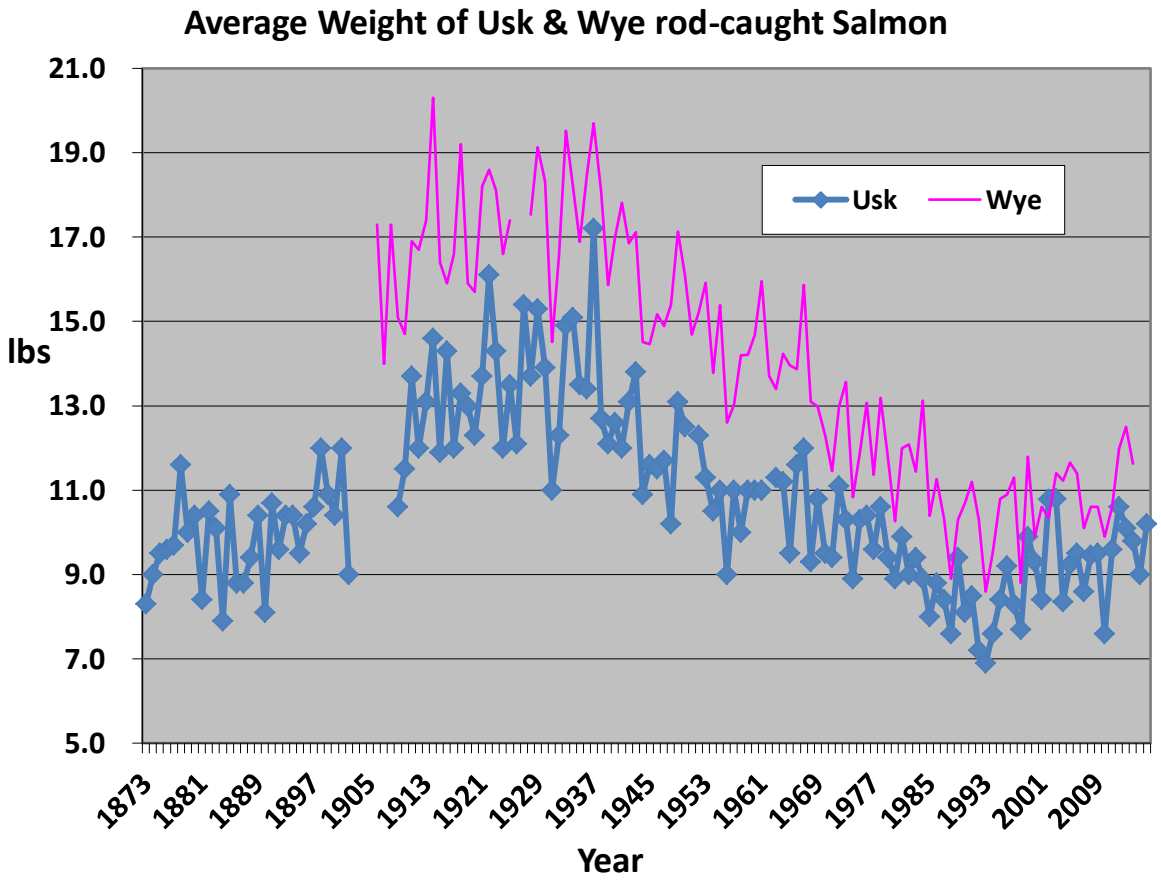
2016 rod catch at Upper Llangybi relative to the Long-Term Average (2000-2015)

| | |
|---|---|
| March-June | 199% |
| July-Oct | 73% |

Of the salmon caught at Upper Llangybi, the three Merthyr Tydfil AA fisheries, Monkswood and the four Isca AC fisheries, 69% were over 8lbs:

| 8lbs or less | >8-14lbs | >14-22lbs | >22-28lbs | No. of salmon |
|---|---|---|---|---|
| 31% | 54% | 15% | 0% | 323 |

2.5 The 162 salmon caught in the Index fisheries had an average weight of 10.2lbs. The average from a similar sample in 2015 was 9.0lbs. The average weight of rod-caught salmon on the Usk, as on the Wye, has been increasing with some annual variation, since the 1990s.

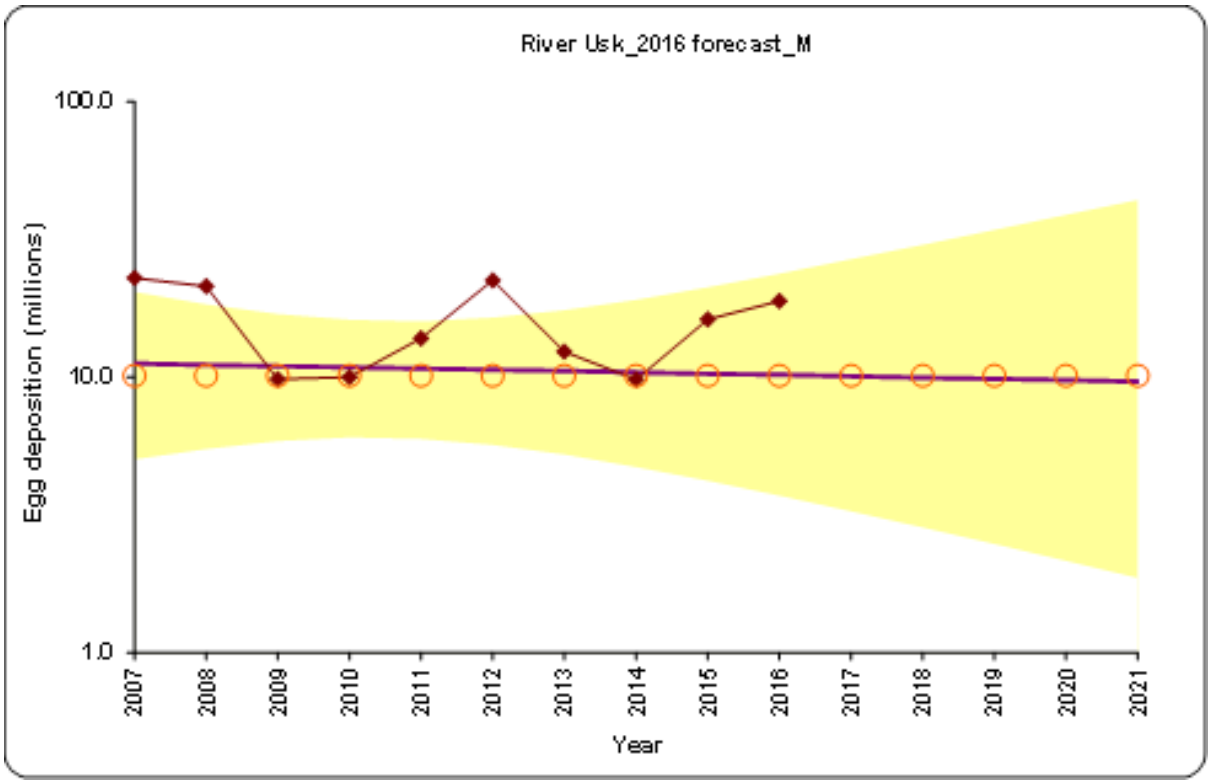



**3.0 Stock status**

3.1 Using the predictions for the declared rod catch, given in 2.2, based on catches at the index fisheries and the weights of the 162 salmon caught at these fisheries sent to NRW, Paul Greest and Ian Davidson have made an initial assessment of expected egg deposition this year and stock status.

Egg deposition:
Lower estimate: 16.7 million (from predicted declared 2016 rod catch of 696)
Mid estimate: 18.9 million (from predicted declared 2016 rod catch of 793)
Upper estimate: 22.9 million (from predicted declared 2016 rod catch of 974).

These have been used in conjunction with estimates of egg deposition from 2007 to 2015, as shown for the 2016 Mid-estimate below, to assess stock status. The black squares indicate egg deposition in each year. The objective is for the stock to exceed the Conservation Limit (red circles) 80 percent of the time on average, i.e. for the line to be higher than the red circles. The yellow bands indicate the uncertainty about the position of the line.




The full Annual Assessment of Salmon Stocks and Fisheries for 2015 indicated that the Usk salmon stock was in better condition than most, if not all, other rivers in Wales.

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/525662/Annual_Salmon_Stock_Status_Report_2015_final.pdf

This early assessment for 2016 indicates a slight improvement from 2015, itself an improvement on the previous two years. Nonetheless, egg deposition over the past ten years hasn't shown an improving trend, as needed, and may be inadequate in 2021.

With the Mid-estimate for a declared rod catch of 793, there would be an even chance of a slight shortfall, about half a million eggs. So the Usk is still projected to be **'Probably at Risk'**. Whatever catch is declared to NRW, stock status is highly unlikely to reach the 'Not at risk' category which is the objective.

3.2 This early assessment, based on catches, takes no account of the widespread failure of spawning in the Usk catchment last year as documented by the NRW paper for this meeting. That failure is expected to hit runs, and catches, of adult salmon from 2019 to 2021.

3.3 Further caution is indicated by an analysis of salmon parr (1+) densities recorded by NRW at its temporal sites in the Usk catchment. The same 13 sites are electrofished most years to indicate

likely trends in juvenile production. It is important to compare the same sites as habitat and hence juvenile numbers vary so much from site to site. These survey results do not suggest that salmon stocks will increase in future, as needed. Having ranked the years by the parr densities at each site from 2002 to 2016 and averaged the ranks across all sites:

- 5 of the 7 worst years have been since 2010; and
- 2016 was the worst.

| 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2013 | 2014 | 2015 | 2016 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9 | 6 | 1 | 4 | 7 | 13 | 2 | 5 | 11 | 12 | 8 | 10 | 14 |

22 November 2016