

Note for the Usk Local Fisheries Group

Rod and net catches of Usk salmon and stock status in 2020

Guy Mawle (guy.mawle@gmail.com), 6 December 2020

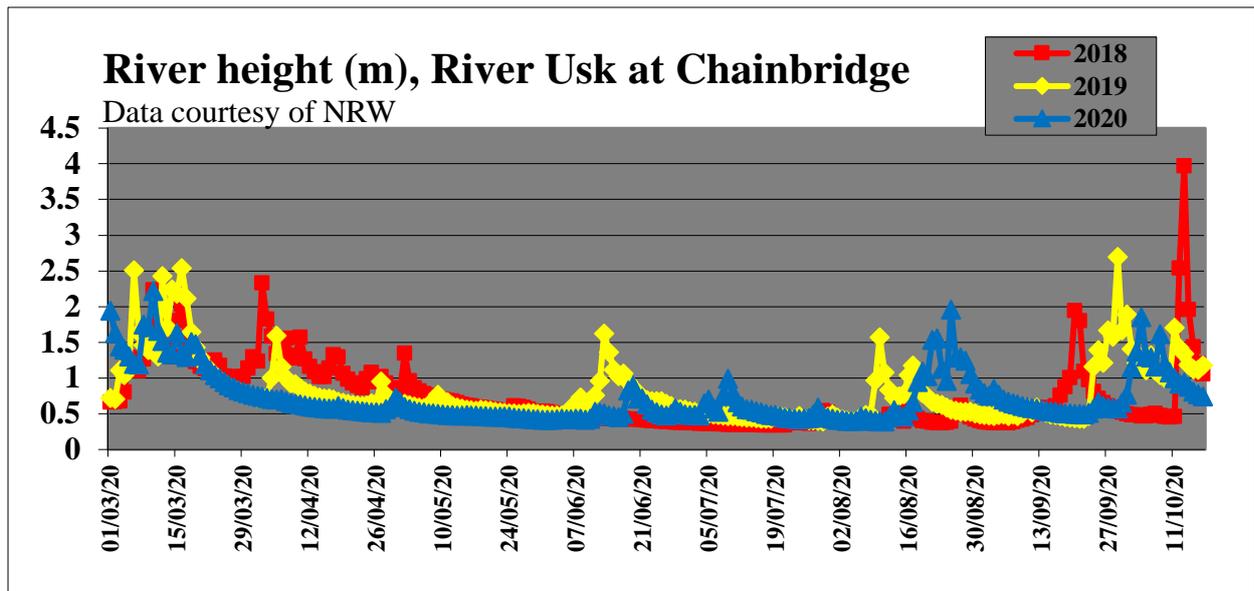
Summary:

- After a sunny, dry spring, river conditions later in the 2020 fishing season were often good for adult salmon migration and angling.
- For 2020, the declared rod catch for the Usk, when available from catch returns next April, is predicted to be between 280 and 380 salmon, best estimate 330.
- Only 11 percent of the 2020 rod catch was taken before July due largely to the Covid pandemic. Without the Covid regulations, the declared rod catch might have been about 460 salmon. A distinct improvement on the last two years but still low.
- Fishing effort may have been low in 2020 for reasons other than Covid restrictions.
- The average weight of salmon in 2020 was 9.0lbs.
- There were encouraging numbers of salmon which had spent two years at sea, 2-sea-winter fish despite the exceptionally poor spawning season in 2015/16.
- All the Severn Estuary fisheries were closed or catch & release in 2020.
- Adult stock status, based on catches, is likely to remain 'Probably at Risk'.
- This concern is reinforced by continued low abundance of juvenile salmon, indicated by a survey by the Wye & Usk Foundation. Key reasons for low abundance are likely to be climate change made worse by bad agricultural practice; and, locally, obstructions to migration.



A coloured cock salmon, ~15lbs, one of four caught on fly by an angler on 14 October. Given the right conditions, prospects were better in 2020 than the last two years.

1.1 **River conditions:** As in 2019, conditions were good at times for salmon migration and angling, though the spring, early summer and much of September were generally dry.



In summary:

March: As for the last two years, flows were high especially in the first half of the month.

April/May: Flows dropped away with only one small spate at the end of April. As in 2019, from mid-May to mid-June, flows were augmented by a release of about 50MI/d from Usk reservoir for abstraction by Dwr Cymru Welsh Water (DCWW) at Usk town. The release increased flows at Chainbridge by about 10 percent and substantially more, further upstream.

June/July: There were small spates in the middle of June and early July but otherwise flows stayed low and, for June, below average.

August: Water temperatures exceeded 20°C at times in the lower river and at least one club (Isca AC) closed its salmon fisheries, 10th to 16th, until the river cooled and rose giving good conditions for migration and fishing.

September: Flows remained good at the beginning of the month but then dropped steadily for the rest of the month. Again, DCWW augmented flows by a regulation release of about 50MI/d from Usk reservoir from 11 September to the end of the month.

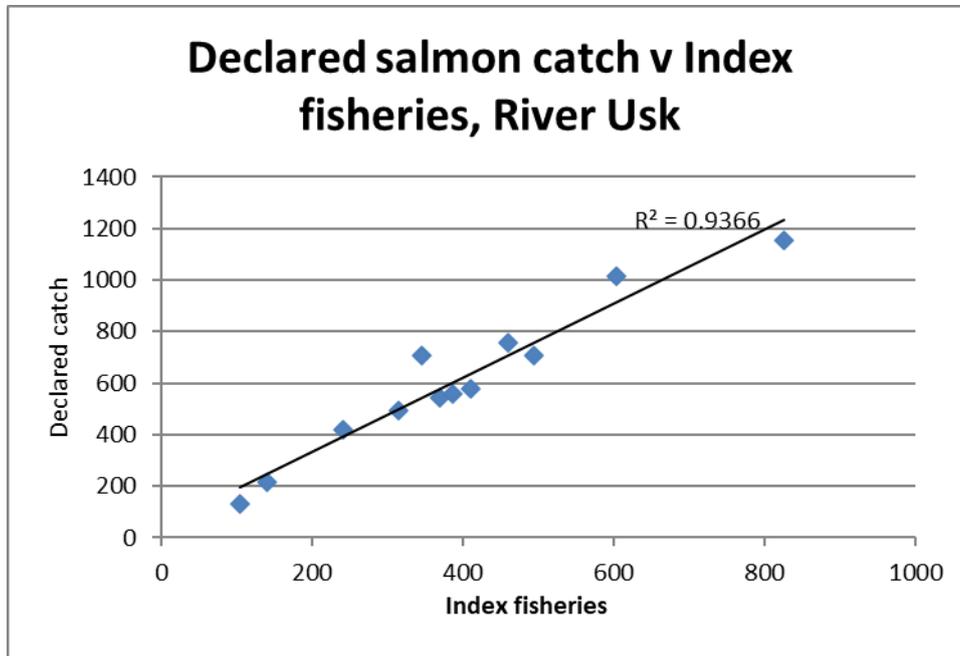
October: Although flows were not as high as in 2019, which was exceptionally wet, they were still well above average providing good conditions for migration and fishing for much of the last 17 days of the season.

2. Rod catch of Usk salmon

2.1 **Seasonal totals:** Catches were provided for '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); Llanover (from Ross Murray) and from Isca

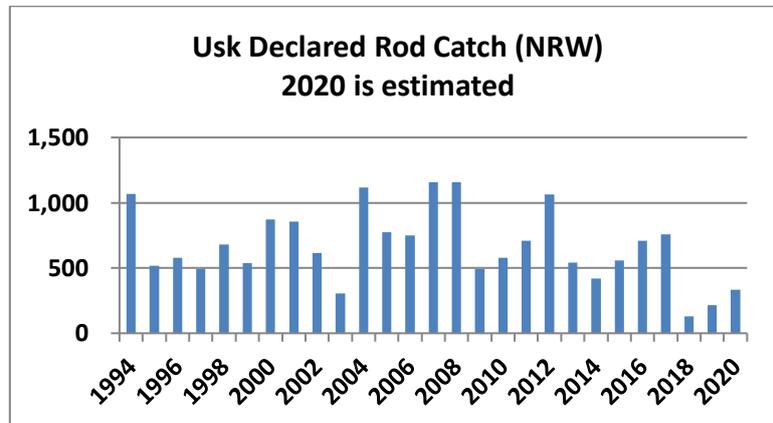
AC's three fisheries (from Morten Ostergaard). Together these totalled 230, an increase from 2018 and 2019 but still lower than any in the previous ten years.

2.2 Salmon licence holders are required to make individual catch returns to NRW by the end of December. Not all do, but these 'declared' catches are used by NRW, with some adjustment, to assess stock status. There is a strong correlation between the catches at Index fisheries and the declared catch.

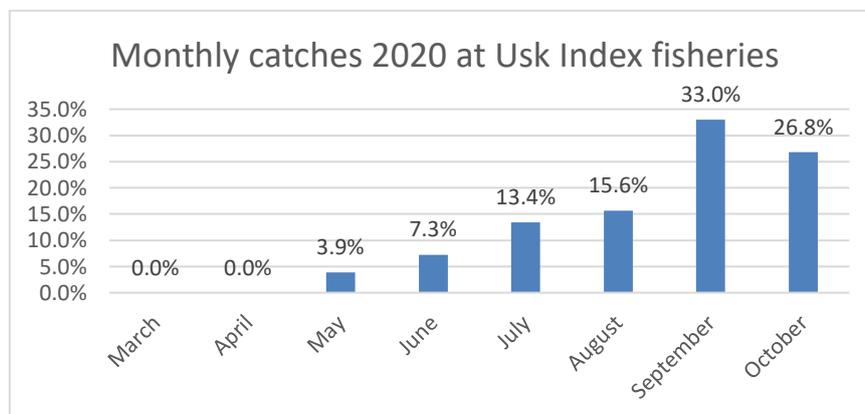


	Salmon catch Index fisheries	Declared Usk catch	Proportion of Usk catch
2008	826	1156	71%
2009	314	491	64%
2010	410	580	71%
2011	346	707	49%
2012	603	1014	59%
2013	369	543	68%
2014	241	421	57%
2015	386	559	69%
2016	493	709	70%
2017	459	756	61%
2018	105	129	81%
2019	140	216	65%
2020	230	Predicted: 332 Range: 284-377	5-year average to 2019: 69% (Range: 61% to 81%)

2.3 Over the last five years, the catch recorded at the Index fisheries has, on average, been 69 percent of the catch declared by anglers to NRW, ranging from 61 to 81 percent. The catch at the Index fisheries in 2020 can therefore be used to estimate the catch that will be declared to NRW this winter and reported next year. For the 2020 season, it is predicted to be between 284 and 377. In dry years, such as 2018, the Index fisheries tend to provide a larger proportion of the catch, being mostly in the lower half of the river. The high flows at the backend of the 2020 season allowed salmon to run well up-river so the index fisheries may provide a lower than average percentage of the total catch. Based on the average, the declared catch is expected to be about 330 salmon. Compared to the last two years, this is an improvement but still low.



2.4 **Fishing effort: the impact of Covid restrictions:** regulations limiting travel were in place for most of the early season, from 23 March to 6 July, and fishing effort for salmon was minimal being restricted to local anglers. At the index fisheries that provided monthly catches, only 11.2% was taken before July. This is much less than usual. For catches declared to NRW, the average for the last five years is that 36 percent of the season’s catch was taken before July, range: 28 to 43 percent. Based on these proportions, the estimate for the 2020 declared rod catch of 332 would, in the absence of the early Covid lockdown, have been 460 (range 409 to 517). Given the sustained dry spring and generally poor conditions for salmon migration into and up the river, it is likely that the 2020 rod catch without the lockdown would have been nearer 400 than 500.



2.5 While a welcome improvement, the 2020 rod catch for the Usk was still low, even if allowance is made for the impact of the early Covid lockdown. There were also movement restrictions later in the season for anglers from Covid hotspots, such as Caerphilly, which will have reduced fishing effort to some extent. It may also have been reduced for other reasons.

2.6 **Fishing effort: anglers' perceptions of likely success:** Fishing effort is affected by recent catches. After two very poor years in 2018 & 2019, anglers may have perceived, initially at least, that the chances of catching a salmon in 2020 would again be poor and been less inclined to fish. In reality, given good conditions for angling, prospects were much better in 2020. For example, on one index fishery on the August bank holiday when no one else fished, an angler visiting from London landed five salmon on fly from one pool in three hours.

2.7 Perceptions of a low chance of success may have been re-enforced by the new NRW byelaws introducing mandatory catch & release and further restrictions on fishing methods. In practice, the byelaws will have made little difference to most Usk anglers as, according to catch returns to NRW, few fished with bait and the proportion of salmon released had been 90 percent or higher for the previous three years.

2.8 Nationally, the number of people fishing fell in 2020. Sales of salmon licences to Welsh anglers fell by 10 percent up to October, though only by 1.5 percent to English anglers. More information on fishing effort on the Usk should be available when catch returns to NRW have been collated next year. The return form asks for the number of days fished up to and from 16 June on individual rivers, so NRW can report how fishing effort changed on the Usk both early and later in the season, as well as overall in 2020.

2.9 **The size of salmon caught:** The 142 salmon caught at Upper Llangybi, Lower Llangybi, the Merthyr Tydfil AA fisheries, and Monkwood had an average weight of 9.0lbs, a little smaller than in 2019. Despite the almost complete failure of the 2015/6 spawning, and poor grilse runs last year, there were encouraging numbers of salmon which, from their weight, had probably spent two years at sea, i.e. 2-sea-winter fish. Of the sample from these index fisheries: 44% were >8lbs-14lbs (mostly 2-sea-winter), with 43% <8lbs (mostly grilse, 1-sea-winter) and 9% >14lbs (mostly 3-sea-winter).

2.10 **Run-timing:** Although the rod catch was dominated by salmon caught in September and October, there seemed to be few fresh salmon, even grilse, caught after August. Presumably most salmon destined for the Usk now arrive in the Severn Estuary in late spring and summer, even if they may not enter the river immediately.

3.0 Net catch of Usk salmon

3.1 The Severn Estuary fisheries exploit mixed stocks. Tagging and genetic studies indicate that, on average, about 40 percent of the catch would be Usk salmon. In England, the Severn Estuary Salmon Protection Emergency Byelaw was extended for the 2020 season. This byelaw allowed lave nets were allowed to fish catch & release, like anglers, but closed putcher and seine net fisheries. Future management measures for these fisheries are not known. In Wales, the lave netsmen who lease NRW's Black Rock fishery were also required to release salmon and, like some anglers, chose not to fish: <http://www.blackrocklavenets.co.uk/>.

4.0 Adult stock status

4.1 In previous years, NRW made an early estimate of the size and status of the Usk's salmon stock from the predicted catch and sizes of salmon caught from index fisheries. To do this, they used an average exploitation rate derived from the Welsh Dee. However, given a big reduction in fishing effort, and changes in fishing methods, the exploitation rates in 2020 could have been significantly

lower. The exploitation rate by angling on the Welsh Dee this year is not yet available from NRW. Therefore, unlike previously, NRW has not been asked to make an early estimate of the size of this year's adult salmon stock or the egg deposition expected over the spawning season.

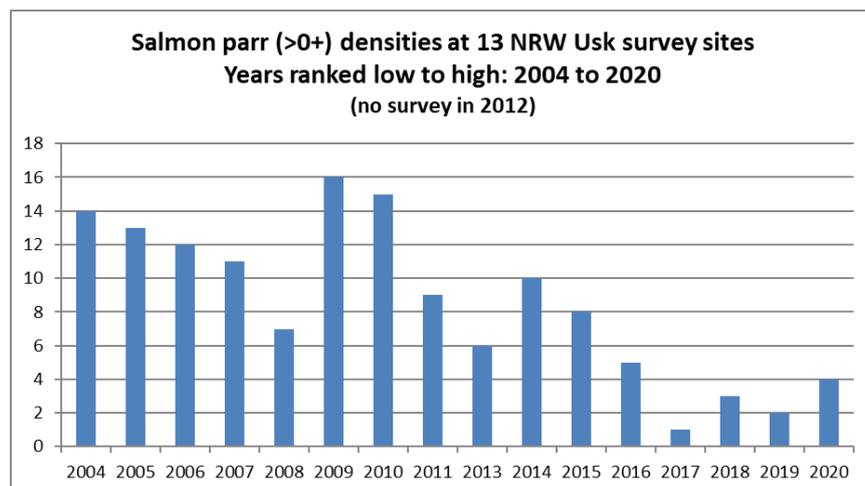
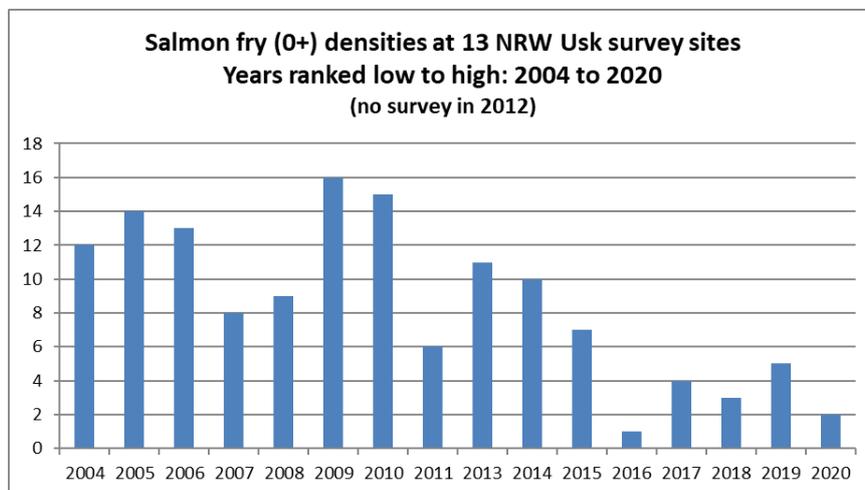
4.2 The level and trend in estimated egg deposition over the last ten years is used by NRW to assess the current and future status of the salmon stock. For 2019, the Usk was assessed as 'Probably at Risk' of failing its management objective with a similar assessment predicted for 2024. For more detail see page 66 in:

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/907284/SalmonReport-2019-summary.pdf

Despite the improved salmon run indicated by the rod catch in 2020, this assessment of 'Probably at Risk' is unlikely to change, given the downward trend over the last decade.

5.0 Juvenile stock status

5.1 Due to Covid restrictions, NRW did not survey juvenile salmon populations in 2020. Instead the Wye & Usk Foundation surveyed all bar one of NRW's regular annual sites, though this was done later than usual. Provisional analysis gives continued cause for concern. The last five years have been the worst since 2004 for both age groups, shown graphically below.



5.2 Several factors probably contribute to the recent low abundance, and now in places the absence, of juvenile salmon, including:

- Extreme flows, whether high as last winter or low flows as later in the spring.
- Higher water temperatures particularly in winter.
- Current agricultural practice increasing runoff from the land, polluting the river particularly with sediment, organic material and nutrients, made more damaging by higher rainfall and higher temperatures.
- In 2018 and 2019, low numbers of adults spawning.
- Locally, obstructions to migration which are being addressed by WUF & NRW.

It is to be hoped that juvenile abundance in 2021 reflects the improved run of adults this year. It is not known what plans NRW has to survey juvenile salmon next year.



16 February 2020: the highest flood in recent decades at Usk Town Bridge. February 2020 had the highest rainfall in Wales on record. Such extreme flows can wash out salmon redds.



Runoff from a maize field during heavy rain carrying fine sediment to pollute an Usk tributary throughout winter 2019/20. The same gateway appears in an Environment Agency document from 2004 to illustrate the same problem. The field is bare again this autumn.



Winter 2019/20: runoff from arable land in the lower Usk catchment carrying soil and organic material from manure heaps down to a road drain, potentially to kill fish eggs in an Usk tributary. Higher up the catchment, stubble turnips caused similar problems.



7 May 2020: Degraded habitat: Instead of water crowfoot (*Ranunculus* sp.), filamentous algae coat the bed of the lower Usk. *Ranunculus* is linked to higher densities of young salmon. Salmon used to spawn nearby. Extensive growth filamentous algae was also reported on the lower Grwyne suggesting possible phosphate pollution.

Acknowledgements

Thanks to all who contributed information, especially those who provided catch data for their fisheries so promptly; to the Wye & Usk Foundation for their provisional survey data; and to NRW.