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Wales

# Salmon stocking and Hatcheries - your views

Summary of responses to 'A consultation on NRW's salmon stocking, third party salmon stocking and the future of NRW's hatcheries' held 4<sup>th</sup> March - 27<sup>th</sup> May 2014

October 2014

## Summary

In December 2013 Natural Resources Wales (NRW) reviewed its salmon stocking activities and associated hatchery operations. The review concluded that enhancement and mitigation salmon stocking by both NRW and 3<sup>rd</sup> parties delivers poor outcomes for salmon populations and may have negative impacts. The report recommended that:

- All salmon mitigation and enhancement stocking in Wales undertaken by NRW and 3<sup>rd</sup> parties should end following a practical and realistic timetable.
- In the case of mitigation stocking alternative methods should be developed with stakeholders that provide broader and more sustainable environmental benefits.
- Mawddach hatchery near Dolgellau and Maerdy hatchery near Corwen should close.
- NRW should consolidate residual salmon culture at Cynrig hatchery near Brecon and assess the feasibility of developing the site as a freshwater research centre.

From 4 March to 27 May 2014 NRW carried out a consultation on these proposals to capture views and identify any other relevant evidence before deciding on the way forward. We received 112 responses expressing strong and contrasting views. Some of the major points raised by the feedback included:

- The majority (80%) of responses opposed our proposals to end enhancement and mitigation stocking and focus effort on alternative mitigation such as habitat restoration.
- Our definition of success, 'wild population fitness', was viewed as desirable but some thought it should have been explained more clearly and be broadened to take into account salmon abundance, socio-economic benefits and be more easily measured.
- The evidence base used in the review drew a great deal of comment; both those for and against stocking thought there was strong evidence in support of their views on the effectiveness of stocking, although little new evidence was provided.
- Many thought the evidence base should have been more thoroughly explained to show its relevance to Wales and the level of risk associated with different kinds of stocking; some thought it over-simplistic, biased or misleading in parts.
- Some thought damage to salmon populations from 'inbreeding' caused by stocking was inevitable whilst others thought the evidence base was limited and not conclusive.
- Mitigation stocking had the highest level of support; the case against it was thought to be weak and many would like to have seen more information about the alternatives.
- Many thought habitat restoration alone would provide insufficient mitigation, it was viewed as a 'day job activity' and some questioned the evidence of its effectiveness.
- Alternative mitigations were suggested but reservations were expressed about the availability, cost and 'deliverability' of the options on the ground.
- Concern was expressed that NRW might reabsorb the resources currently used to deliver stocking activities rather than redirect them into alternative fishery mitigations.

- Some thought a freshwater research centre at Cynrig would be welcome whilst others thought one hatchery was not sufficient and they could not see the business need for a research centre.

## Introduction

Natural Resources Wales is a Welsh Government Sponsored Body. Launched in April 2013, it largely takes over the functions of the former Countryside Council for Wales, Forestry Commission Wales and the Environment Agency in Wales, as well as certain Welsh Government functions.

Overall policy responsibility for Welsh fisheries is devolved to the Welsh Government. NRW is responsible for regulation of inland fisheries in Wales (including salmon, sea trout, eel, smelt and lamprey out to 6 nautical miles) and has a general duty under the Environment Act 1995 to “maintain, improve and develop fisheries”. This is achieved through implementation of legislation and externally funded work based on actions agreed with Welsh Government.

As a new organisation, Natural Resources Wales (NRW) is reviewing many aspects of the work we do to make sure they are as effective as possible in delivering for people, the economy and the environment. One programme of this work is the ‘Agenda for Change’ which looks at how NRW works with partners towards achieving sustainable inland fisheries for Wales.

As part of this we are considering all of our fisheries activities. In December 2013 we reviewed our own existing salmon stocking activity and associated hatchery operations. In the review we considered the rationale, justification and implications of NRW’s activities in rearing and stocking salmon into Welsh rivers, the implications of our considerations for others wanting to do this, and our own capacity in this work. We carried out a full public consultation from 4<sup>th</sup> March - 27<sup>th</sup> May 2014 to capture views on the review and its recommendations before deciding on the way forward. As part of the consultation we were keen to hear from anyone who could identify any relevant evidence we had not considered in our review.

This report summarises the responses to this public consultation exercise and how we have considered the comments we have received. The consultation formed part of ‘our own consultations’ on the NRW website and included a review of NRW’s salmon stocking and fish hatcheries with recommendations on the way forward, a consultation document outlining the case made in the review, a bibliography of relevant papers and a feedback questionnaire with 8 questions for submission by email or post. A copy of the consultation document and associated questions can be found at the following link:

<http://naturalresourceswales.gov.uk/about-us/Consultations/our-own-consultations/consultation-nrw-salmon-stocking-hatcheries/?lang=en>

We would like to thank everyone who took the time and trouble to respond to the consultation. Together the responses represent an enormous amount of thought and knowledge from a vast number of people across Wales and beyond. In addition to salmon stocking and hatcheries many points were made about our fisheries work in general and as we move forward we will continue to use the responses to inform our 'Agenda for change'.

## **NRW's review of salmon stocking and fish hatcheries**

Our review concluded that salmon stocking delivers relatively poor outcomes for NRW and salmon populations, particularly given the lack of evidence for effectiveness and the evidence for potential negative impacts. The review also concluded that these findings were equally applicable to any stocking undertaken by third parties. In addition, it concluded that stocking delivers fewer additional ecosystem services when compared with other measures we could take and advocate others to take and that NRW should focus its efforts on habitat restoration, particularly removing obstacles to migration and improvements to the quality and extent of spawning and juvenile habitat. The review made four recommendations that are highlighted below;

1. That NRW should bring all our own on-going mitigation, population re-inforcement and enhancement salmon stocking in Wales to an end, this includes all third party stocking on rivers designated under the Habitats Directive for their wild salmon populations. A further component of this includes the development of a realistic and practical timetable for bringing all other third party salmon stocking in Wales to an end, and a start to the process of working and consulting with stakeholders and co-signatories to relevant agreements to put in place suitable alternative mitigation measures instead of stocking. Future restoration stocking should not be ruled out if needed, however there is currently no identified need for this in Wales.
2. In addition, given the benefits to salmon and the wider environment from a range of habitat restoration measures, NRW should work with all interested parties to further develop and focus effort on this approach, in particular on removing barriers to migration and increasing the quality and extent of spawning and juvenile habitat available in our rivers. There is a significant opportunity to develop an approach to mitigation and enhancement that will provide multiple benefits to the Welsh environment and to all those that have a stake in ensuring salmon numbers are increasing or stable.
3. It also recommends that in light of the recommendations above, NRW should reduce its hatchery capacity. Taking into account the patterns of hatchery ownership and the capacity and track record for working on other freshwater issues, it is recommended that operations at the Mawddach and Maerdy hatcheries are brought to an end as soon as practicable.

4. The final recommendation is that NRW should consolidate any residual salmon culture (whilst changes to agreements are negotiated and concluded) at Cynrig and carry out further work to assess the feasibility of adapting the site for additional freshwater and fisheries research capacity. In parallel, NRW should investigate the potential for partnerships with Welsh academic institutions or other research bodies for developing and funding work at Cynrig.

## **Consultation on NRW's salmon stocking, third party salmon stocking and the future of NRW's hatcheries – Questions**

In the consultation we asked for feedback using a questionnaire with eight questions:

Q1. Do you agree or disagree with the definition of effectiveness used for the review and with the conclusion that there is little evidence available to demonstrate that mitigation and enhancement stocking is effective? If you believe you have evidence, please provide it.

Q2: Do you agree or disagree that there is enough evidence available to influence a substantial change to NRW's existing salmon stocking activity?

Q3: Do you agree or disagree with our interpretation of the Habitats Directive as it may apply to all our own and third party salmon stocking on rivers designated under this legislation?

Q4. Do you agree or disagree that mitigation and enhancement stocking are not consistent with an Ecosystem Approach?

Q5 .Do you agree or disagree that it would be more cost effective for NRW to improve habitats and thereby secure further reductions in mortality of wild fish as an alternative form of mitigation to stocking?

Q6. Do you agree or disagree with the recommendation that NRW should bring all our own mitigation and enhancement stocking in Wales to an end and work with others to end all salmon stocking in Wales? What would you regard as a practical timetable for achieving this? Should we include sea trout in this recommendation?

Q7. Do you agree or disagree that NRW should focus its efforts and resources on improvements to habitat? What mitigation and enhancement measures would you suggest NRW and partners adopt as an alternative to stocking?

Q8. Do you agree or disagree that NRW should reduce its hatchery capacity and investigate the feasibility of adapting the Cynrig facility to develop a broad-based freshwater and fisheries research facility for Wales, in partnership with other interested bodies? We would particularly welcome suggestions from relevant organisations about potential collaboration opportunities at Cynrig.



## Consultation responses

In total 112 responses were received of which 86 (77%) were from individuals and 26 (23%) were from organisations such as angling clubs, rivers trusts, private sector organisations and universities. Some groups of organisations and individuals made joint responses.

People responded in a variety of ways. Some answered all the questions, some only the questions that they felt were relevant to them, while others gave their response in a general letter without responding to any of the questions specifically. The responses ranged from one short paragraph through to many pages with separate bibliographies. We acknowledged each response on receipt.

## How we have analysed responses

All the questions asked respondents whether they agreed or disagreed with statements or proposals arising from the review and were encouraged to make further comments through subsequent questions to provide more detail.

93 (83%) respondents used the consultation feedback form. A further 19 (17%) responses were received by letter or email for which relevant preferences were recorded against the question numbers on the feedback form.

Some of those responding using the consultation form did not include a statement about whether they agreed or disagreed with the questions. If a preference was expressed it was recorded as agree / disagree, where no preference was expressed or if the response was 'I don't know' or 'no opinion' it was recorded as 'no comment or preference'.

The consultation generated strong and contrasting views. In general, those who agreed with the questions provided fewer additional comments.

Responses came from across Wales with a small number from outside Wales. Not all the responses stated where they were from or in which river they had an interest. However, where river specific interests were expressed the greatest levels of response were from the Wye (29%), Tywi (15%) and Dee (9%). Where geographical areas of interest were indicated the majority were from the southeast (35%), north (23%) and southwest (21%) of Wales.

A table summarising the responses to the questions is given at the start of each question response summary. For each question a summary of the range of comments received is provided.

## Results and summary of responses to questions

**Q1. Do you agree or disagree with the definition of effectiveness used for the review and with the conclusion that there is little evidence available to demonstrate that mitigation and enhancement stocking is effective? If you believe you have evidence, please provide it.**

Agree	Disagree	No comment or preference
18	80	14
16%	71%	13%

Almost a quarter of all the responses referred to the definition of effectiveness, the views expressed included:

### The definition of effectiveness used in the review

#### Supportive of the definition

- The most important objective is the establishment of self-sustaining populations of wild fish.
- Maintaining the fitness of salmon populations will maximise the number of fish.
- The definition is consistent with the aims of the Habitats Directive.
- The definition renders stocking *de facto* ineffective except where extirpation (local extinction) is imminent.

#### Explanation of definition

- It was not fully explained; the word fitness has different meanings and should have been defined.
- It was not clear how it related to catches, total population size or production.

#### Suggested improvements to the definition

- Fitness is desirable as part of a wider range of objectives that take into account fish abundance and socio-economic benefits.
- Fitness might not always be the aim; increasing fish abundance or restoring fishing amenity is also important.
- The definition was not SMART (Specific, Measurable, Achievable, Realistic or Time-bound) and this will make it difficult to measure.
- The definition should refer to Habitats Directive parameters.

#### Evidence available to demonstrate the effectiveness of stocking

Respondents provided both published and unpublished evidence to support their views on the effectiveness of stocking. The NRW document 'Natural Resources Wales' Salmon stocking policy and hatchery review – analysis of consultation responses and additional



evidence', provides a review of the evidence listed by respondents. The views expressed included:

### **Effectiveness of mitigation and enhancement stocking**

- There is more than enough evidence to show hatcheries are not effective.
- Stocking provides little benefit, may mask issues and at worse cause damage.
- A strong evidence base was not sufficiently well demonstrated; not all the relevant evidence was shown and a lack of rigour had been applied.
- The evidence presented was one sided, not adequately explained (nor widely available to consultees) and it did not present a sufficiently strong case.
- The case was oversimplified, misleading in parts and had little relevance to the stocking that takes place in Wales.
- Modern hatchery techniques can improve the effectiveness of stocking.

### **Types of stocking**

- A more thorough explanation of the different types of stocking, the evidence for and against, and its relevance to Wales was needed.
- There is a strong case against enhancement stocking but not all stocking types; the different levels of certainty and risk should have been shown.

### **Genetics and inbreeding**

- Evidence was presented at the Atlantic Salmon Trust conference in November 2013 to show that stocking will cause long-term damage to wild salmon stocks.
- Stocking can increase adult abundance but not fitness of the population.
- If stocking in a catchment can be shown to be damaging it should not continue.
- There is no evidence in the literature to suggest that stocking on the scales undertaken in Wales is damaging.
- Where populations are in decline due to reduced genetic diversity short term stocking may be the only option to increase fitness.
- The genetic evidence was limited and not conclusive; the scale and risks of inbreeding were not explained. NRW should await or commission more conclusive evidence.

### **General Comments**

- Stocking should only be used as a last resort and follow the NASCO guidelines to reduce the risk of damage to wild stocks.
- The large scale use of hatcheries overseas made some sceptical of NRW's case.
- The costs of hatcheries and stocking are driving NRW's case not the evidence.

**Q2: Do you agree or disagree that there is enough evidence available to influence a substantial change to NRW's existing salmon stocking activity?**

Agree	Disagree	No comment or preference
32	69	11
29%	62%	10%

**Supportive**

- The review was cogently argued and reflects an increasing body of evidence which is supportive of a change in policy.
- Research has demonstrated poor fitness and low survival of hatchery reared fish and has highlighted the negative effects stocking can have on wild populations.
- The new policy should cover all salmonid stocking including brown trout in SACs.

**Partly supportive**

- There is sufficient evidence against enhancement stocking, evidence to show restoration stocking is effective and insufficient evidence against mitigation stocking.
- Hatchery programmes should only be considered when the need for such programmes has been clearly established and the associated risks minimised.

**More evidence needed**

Most of the concerns raised about the evidence in response to question 1 were also raised in response to question 2 but in addition:

- No changes should be made until there is a clearer and stronger evidence base.

**Extent of change**

- Stocking should not continue unless it is unequivocally proven to cause no harm.
- Enhancement stocking should be limited or discouraged, restoration stocking should be used if needed and mitigation stocking should be continued unless effective alternatives can be found and agreed with local stakeholders.
- There should be no change to the Wye semi-natural rearing (SNR) scheme until the results have been assessed (*25% of all responses received expressed support for this scheme*).
- No changes should be made until there is a genetic assessment of populations to determine if any of them have been weakened by stocking.
- Fishery owners and anglers should not be prevented from funding their own stocking programmes; stocking does more to attract anglers than any other activity.

**Change hatchery and stocking practices**

8% of all responses agreed there was enough evidence for change but to improve or increase stocking:

- There is sufficient evidence to justify research into modernising rearing and stocking methods in order to avoid any deleterious effects.
- The numbers of fish stocked should be increased.

### Resources

- The proposed changes are driven by cost cutting and do not resonate with anglers.
- All the current costs of operating hatcheries should be calculated transparently; funds should be ring fenced to alternative mitigations.
- Concern was expressed that NRW might co-opt finance from mitigation settlements to supplement its own budget to undertake habitat work it should be doing already.

### Q3: Do you agree or disagree with our interpretation of the Habitats Directive as it may apply to all our own and third party salmon stocking on rivers designated under this legislation?

Agree	Disagree	No comment or preference
16	69	27
14%	62%	24%

### Supportive

- Damage to salmon stocks from stocking is almost inevitable. It is not possible to say SACs will not be impacted; the evidence points to potential serious damage.
- This approach should be taken on all rivers not just SAC's.
- Stocking is wasteful or at worst harmful; luckily the small scale of most programmes in Wales suggests wasteful.

### Doubts about the interpretation

- The review provides an over-simplistic and slightly misleading (and negative) summary.
- The interpretation was a selective reading of the Habitats Directive; respondents would like to see evidence that NRW have approached this legislation properly.
- A convenience for the regulator and counter to the evidence based approach.

### Management activity or plan / project

- It is debatable whether mitigation stocking is a plan or project.
- Appropriate Assessments should be carried out on an individual basis; the review pre-judges the outcomes on the basis of a limited review.
- Stocking is a significant mechanism available to NRW, alongside habitat improvement, to help meet its obligations under the Habitats Directive.
- Damaging hatchery practices should be identified, the risks quantified and practices improved to minimise any risks.
- Mitigation stocking is designed to compensate for loss of headwater spawning; without it the ecosystem along the length of the river would be impacted.



## Evidence base

- No substantive evidence has been produced to suggest that salmon stocking in river SACs in Wales is damaging the features for which they are designated.
- There was no objective and quantified discussion about the negative impacts referred to or how they could be more or less significant.
- Those against stocking argue on one hand that few fish return and then that stock genetics are threatened; these points of view are contradictory.
- NRW should direct its efforts at issues that are known to damage salmon stocks rather than things that might cause damage in some extrapolated circumstances.

## Q4. Do you agree or disagree that mitigation and enhancement stocking are not consistent with an Ecosystem Approach?

Agree	Disagree	No comment or preference
17	74	21
15%	66%	19%

## Supportive

- Habitat restoration provides benefits to a broad range of species.
- Stocking masks issues and is a 'conservation by distraction' approach that allows developers to destroy species habitats 'guilt free'.
- Enhancing populations for recreational purposes should be prohibited.

## Opposed

- Best practice stocking is consistent and supports other species.
- The current lack of natural spawning salmon makes stocking necessary.
- Stocking does not introduce fish but makes better use of those available, it can provide ecosystem services such as education and supports rural communities.

## Mitigation stocking

- Enhancement stocking is inconsistent with an ecosystem based approach; mitigation stocking is not because it seeks to restore fish production to its natural level.
- Mitigation stocking needs to be considered on a case by case basis.
- Rivers and Fisheries Trusts of Scotland (RAFTS) accept mitigation stocking as part of an integrated approach.

## Condition of Ecosystem

- River ecosystems are already highly disturbed by man; stocking can counteract these issues until longer term solutions are found.
- All elements within an Ecosystem Approach need to be monitored and adjusted accordingly; this should include the stocking of salmon.

### Stocking as part of a range of interventions

- It is a misrepresentation to suggest, as the consultation does, that stocking is done in isolation of other activities such as habitat restoration or that it is always unresponsive to wider ecology e.g. benefits predators.
- Stocking of fish as part of an integrated approach aligns with the ‘Sustaining a Living Wales Green’ ecosystem approach to secure ‘healthy, resilient and productive ecosystems that are managed sustainably and deliver for society as a whole, supporting employment and wellbeing’.

### Q5 .Do you agree or disagree that it would be more cost effective for NRW to improve habitats and thereby secure further reductions in mortality of wild fish as an alternative form of mitigation to stocking?

Agree	Disagree	No comment or preference
17	72	23
15%	64%	21%

### Supportive

- Habitat restoration will benefit the entire ecosystem, amenity value, provide climate change resilience and is likely to be more cost effective in the long term.
- There is good evidence to support habitat restoration from North America.
- Consider making payments to landowners for river restoration schemes conditional upon improved public access so that ecosystem services are more widely available.
- Information on costs and benefits should be gathered to learn about the cost-effectiveness of the habitats improvement approach.
- Habitat restoration is one of a number of actions that could be taken; need to generate fundamental changes to land management to address land use impacts.

### Mitigation

- No amount of habitat restoration work can replace the loss of pristine rivers above reservoirs; there are sites with natural barriers, depleted reaches or excessive predation where action could be taken to mitigate the effects of lost habitat.
- Agree that habitat work is preferable but scope for improvement is becoming limited; may not be able to find sufficient or affordable alternative mitigations.
- NRW need to demonstrate equivalent mitigation that should not include work covered by existing obligations.
- The review provides no evaluation of costs, benefits and risks of different mitigations and assumes habitat can always be done.
- Develop specific salmon mitigation plans for each river in collaboration with stakeholders using all the tools available, including stocking if necessary.

## **Opposed**

- Tackle underlying reasons for low fish numbers before the cessation of stocking.
- Stakeholders are being asked to agree to a substantial change with no firm proposals on what will be done to replace any current programmes.
- Insufficient evidence was presented in support of habitat restoration.
- Habitat will be insufficient on its own; no improvements have been generated by habitat restoration on the Wye after £10M has been spent over 15 yrs.

## **Cost-effectiveness**

- No facts and figures were provided to assess the cost-effectiveness of stocking or the different types of habitat restoration, their effectiveness or costs.
- Hatcheries are already paid for; there may be a more cost-effective ways of operating them but we cannot quantify the benefits of habitat improvements.
- Habitat restoration can be expensive to construct and maintain; the benefits may be catchment or site specific.
- Salmon stocking and habitat restoration are complimentary and not alternatives.
- Stocking can be used to compliment a habitat improvement scheme and “jump start” recently improved habitat to improve the real return on the capital spent.
- If returns from stocking were improved it would be more cost-effective.

## **Resources**

- Redirect funds to 3<sup>rd</sup> parties for investment in sustaining and monitoring wild stocks.
- Resources must be made available quickly to do habitat restoration effectively.
- Resources must be divided up equitably and ring fenced with a legally binding commitment that specifies how funds will be used; they should not be reabsorbed.
- The damage to angling tourism caused by the perception that there is a lack of stocking will cause a greater economic loss than the closure of the hatcheries will save.
- The resources redirected from hatcheries will not go far.
- Funding is already needed to maintain existing habitat schemes.
- The proposed policy change is just another way of saving money.

**Q6. Do you agree or disagree with the recommendation that NRW should bring all our own mitigation and enhancement stocking in Wales to an end and work with others to end all salmon stocking in Wales? What would you regard as a practical timetable for achieving this? Should we include sea trout in this recommendation?**

Agree	Disagree	No comment or preference
16	89	7
14%	80%	6%

### **Supportive**

- There should be no intermediate options; important fisheries decisions have often been changed by those who shout loudest often conflicting with science and fact.
- The scientific consensus is with NRW on this change in policy.
- Catch returns should be used to monitor the effects afterwards.
- Adult fish are donated to hatcheries well in advance of the spawning season leading to inevitable mortalities of fish which if released may have spawned successfully.

### **Partly supportive**

- Agree in principle, but where stocking schemes use the latest techniques and there is no evidence of damage they should be allowed to continue.
- There will continue to be a role for restocking to restore fish populations lost following catastrophic incidents; this should reflect the natural variety of fish and other fauna beyond fish species of a perceived commercial value.

### **Mitigation**

- Based on the evidence enhancement stocking should stop; there is insufficient evidence on the non-effectiveness of mitigation stocking.
- Habitat improvement cannot provide mitigation for the loss of pristine rivers it can only restore damaged habitat, it cannot replace lost spawning grounds.
- Mitigation stocking should continue unless equal or better alternative mitigations are provided, supported by an appropriately resourced evidence base.
- NRW and local stakeholders should work together to formulate a means of delivering these obligations in a sustainable and cost-effective manner.
- The anti-mitigation case is weak because the risks from mitigation stocking are not fully or accurately described and alternatives with proven track records are not convincingly displayed.

### **Opposed**

- Until fish stocks have been restored suggestions to cease stocking will be resisted.
- Viable alternatives were not presented in the review.
- The decision is based on financial constraints.



- Disagree until there is stronger evidence base.
- NRW should improve and modernise its hatchery techniques.
- There are so many more damaging things to the survival of the salmon that are not being tackled.
- The EA was well on its way to establishing a meaningful working relationship with many stakeholders including many of the angling fraternity, this proposal will potentially put that hard won progress back considerably.

### **3<sup>rd</sup> parties**

- NRW cannot stop 3<sup>rd</sup> party schemes without stronger evidence.
- The investments made by 3<sup>rd</sup> parties in stocking infrastructure will be wasted.
- There are insufficient independent inspections at private hatcheries.
- Private efforts to improve fisheries have had every possible obstacle placed in their way. Now, despite the assurances of fishery managers and significant expenditure, it is proposed the Wye semi-natural stocking of salmon should be brought to an end.

### **Plans**

- Help those doing enhancement stocking to develop improvement plans that may or may not include stocking.
- Develop mitigation plans and then determine how much hatchery capacity, if any, is required; this would also drive the timetable for changes in hatchery capacity.
- Each population is distinct and will have different responses to the absence of stocking - need to ensure correct solution is implemented.
- Few fishery management proposals have been followed to conclusion and results assessed. We no longer have salmon action plans and the views of anglers and owners are seldom taken into account in Local Fishery Advisory Groups.

### **Practical Timetable**

A broad range of timescales were suggested ranging from immediately to no cessation.

- There may be reasons for a managed transition from existing arrangements which will probably need to be dealt with on a case by case basis.
- Any timetable for bringing stocking to an end by third parties should be over the longest time scale possible.
- It depends on the tasks to complete the review (which are significant) and the 3<sup>rd</sup> party issues.
- The angling community on the Wye has been blighted by political warfare, infighting and disengagement. Many interested parties have joined forces to support the Wye SNR project in a way not achieved for many years; it should be completed and the results assessed.
- Effective alternatives should be in place before stocking ceases.
- NRW should reconsider when stocks are 'not at risk'

## Sea trout

Agree	Disagree	No comment or preference
12	29	71
11%	26%	63%

The majority of respondents did not refer to whether sea trout stocking should be included in the policy change. However, those who agreed and disagreed concluded that the same arguments should apply to salmon and sea trout.

- Sea trout should be included. Far less sea trout stocking is done but it would be helpful to have consistency across migratory salmonids and make sure it's compatible with the brown trout policy.
- There is greater uncertainty about sea trout; the same impacts probably apply.
- Sea trout are so valuable to Wales that their protection should be of equal importance to salmon and therefore they should also be included in this strategy.
- After little mention of sea trout in the review and the consultation document it was unexpected to see reference to sea trout in the questions.
- Sea trout stocking on the Mawddach was effective.
- Sea trout stocks have been in decline and need the support of stocking.

**Q7. Do you agree or disagree that NRW should focus its efforts and resources on improvements to habitat? What mitigation and enhancement measures would you suggest NRW and partners adopt as an alternative to stocking?**

Agree	Disagree	No comment or preference
22	75	15
20%	67%	13%

## Supportive

- Resources and skills must be aimed at habitat protection, restoration and monitoring.
- Resources should be ring fenced in perpetuity for non-routine work.
- Some of the resources released from any reduction in stocking costs should be directed towards River Trusts to help maintain and develop expertise and capacity.
- Rivers Trusts have a proven track record of delivering habitat improvements and working with landowners.
- Stocking has been tried for almost a century, so it is not unreasonable to ask for adequate time to be allowed to give habitat improvement an opportunity to work.
- NRW should research the most cost-effective measures of habitat improvement to deal with specific issues such as reducing avian predation.

- The benefits of habitat restoration should be monitored over time; this was one of the fundamental shortfalls of the stocking policy.
- More 'instream' habitat improvements should be included in habitat schemes.

### **Other enhancement and mitigation measures**

- Physical improvements must be supported by water quality improvements.
- Habitat work is preferable but the scope for improvement is becoming limited.
- Focus on root causes of salmon decline via both habitat improvement and regulatory action to secure greater gains; habitat alone will not work.
- Habitat restoration is not the only alternative, other mitigations should be considered:
  - Reduce diffuse pollution
  - Ameliorate acidification
  - Coastal enforcement
  - Exploitation control
  - Improved fish passage at barriers (including natural barriers)
  - Reduce pollution – sewage, mine water
  - INNS eradication
  - Reduce over abstraction
  - Predator control
  - Gravel compaction

### **Opposed**

- There is no evidence habitat works; in many places habitat is already good.
- Reconsider ending stocking when the alternatives have improved fish stocks.
- Decisions should be river specific and developed as part of river specific plans, working closely with stakeholders and 3<sup>rd</sup> sector.
- Habitat restoration is one element of multi-faceted approach; habitat restoration and stocking are both important.
- Use a range of approaches that tackle the immediate threats by using conservation hatcheries whilst addressing longer-term problems with water quality and habitat.
- Stock areas with improved habitats until populations are self-sustaining.
- Habitat restoration forms part of NRW's statutory duty, which it is obliged to meet under WFD.
- Consultation infers that by stopping mitigation stocking NRW will be focusing more resources on habitat improvement works but have not provided any assurance or any financial information that this will be the case.
- Mitigation stocking should continue and hatchery technology should be improved to compensate for habitat that is permanently lost.

**Q8. Do you agree or disagree that NRW should reduce its hatchery capacity and investigate the feasibility of adapting the Cynrig facility to develop a broad-based freshwater and fisheries research facility for Wales, in partnership with other interested bodies? We would particularly welcome suggestions from relevant organisations about potential collaboration opportunities at Cynrig.**

Agree	Disagree	No comment or preference
24	63	25
21%	56%	22%

### Reducing hatchery capacity

#### Supportive

- Stocking is an archaic practice; we need to work together on sustainable solutions.
- NRW need to make a concerted effort on habitat.
- The value of the facilities should be considered carefully against the level of funding required to address the wider pressures on river catchments.
- Agree in principle but need to retain expertise and facilities to respond to incidents.

#### No preference

- This is a matter for NRW based on business needs.
- Hatchery capacity requirements should be based on catchment action plans put together with stakeholders.

#### Opposed

- Not yet;
  - Stocks are in decline
  - Too many factors are affecting salmon at present
  - Complete Wye semi-natural release project and analyse the results
- Reduce capacity once major salmon stocks recover from current poor state.
- Reduction in capacity is short sighted; if stocks reduce further stocking may be needed.
- It will be expensive to reopen the hatcheries, and so Wales may become dependent on hatcheries in England, if available, increasing costs and reducing NRW control.
- There is no backup plan or insurance with this 'one-way' decision that lowers the status of Wales and makes us less self-sufficient.
- If hatchery capacity is reduced the resources should be put into more modernising hatchery techniques.
- Private hatcheries have an excellent husbandry and partnership record forged over many years and this is to be encouraged not thrown away (*13% of all responses expressed support for a specific private hatchery*).

### **Reducing costs**

- This proposal is all about cost savings.
- With reasonable assurances Wye owners and anglers might support the SNR.
- Let conservation groups do non-fish culture work.
- The decision to retain Cynrig is driven by the likely dilapidation payments if the lease was terminated; therefore we question if NRW is committed to a research centre.
- Link hatchery work to tourism in order to generate income.

### **Research Centre**

- Such a facility would be welcome and beneficial for the social and economic importance of angling in Wales.
- A freshwater and fisheries research facility would be a positive move but not at the expense of removing all hatcheries, public and private.
- It is not clear why a research facility is needed when others already exist.

### **Research Centre Business Plan**

- Requires a carefully thought out and funded research programme, properly coordinated with other research being carried out on migratory salmonids.
- It would be sensible to form partnerships with academic institutions, angling organisations, rivers trusts and other NGOs.
- NRW should do a business case review to look at all potential sites not just Cynrig.
- Specialise in sea trout research to follow up the Celtic Sea Trout Project.
- Find better ways of developing wild instincts in hatchery reared salmon.

### **Future hatchery needs, capacity and skills**

- Retain sufficient capacity that is not reduced to a trivial level; need both equipment and technically skilled staff available.
- Sufficient hatchery capacity is needed to respond to:
  - Catastrophic disease or parasite outbreaks
  - Pollution incidents
  - Extinction events
- There should be more than one hatchery site in case of a serious pollution or outbreak of disease.
- Hatchery capacity is needed in North Wales:
  - The logistics of moving fish and ova from north to south are too risky.
  - For restoration stocking of Llyn Padarn char.
  - To investigate poor smolt survival in the Dee.

### **Partnership working**

- 'Salmon homecoming' needs to be maintained; NRW should confirm support for its continuation across Wales.
- Wye SNR project should be a blue print for co-operation between fishery interests.

- Keep hatchery sites open and use as focal points for fisheries partnership working.

## **Annex 1 – Organisations who responded**

Afonydd Cymru

Atlantic Salmon Trust

Black Mountain Smokery

Campaign for the Protection of Welsh Fisheries

Carmarthenshire Fishermen's Federation

Conwy Valley Fisheries Association

Crosshands and District Angling Association

Dee Fishery Association

Denbigh and Clwyd Angling Club

Dolgellau Angling Association

Federation of Clwyd Anglers

Fish Legal

Golden Valley Fish and Wildlife Association

Llyn y Fan Hatchery

Molecular Ecology and Fisheries Genetics Laboratory, Bangor University

New Dovey Fishing Association

Prince Albert Angling Society

Rhyl and St Asaph Angling Association

Salmon and Trout Association

Seiont, Gwyrfai and Llyfni angling Society

Severn Rivers Trust

South East Wales Rivers Trust

Taff Local Fisheries Advisory Group

The Dee Trust

The Rivers Trust (East & South)

The Wye Salmon Association

Welsh Water / Dwr Cymru

Wye and Usk Foundation





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