National Trout and Grayling Fisheries Strategy

July 2010 Newsletter

Introduction

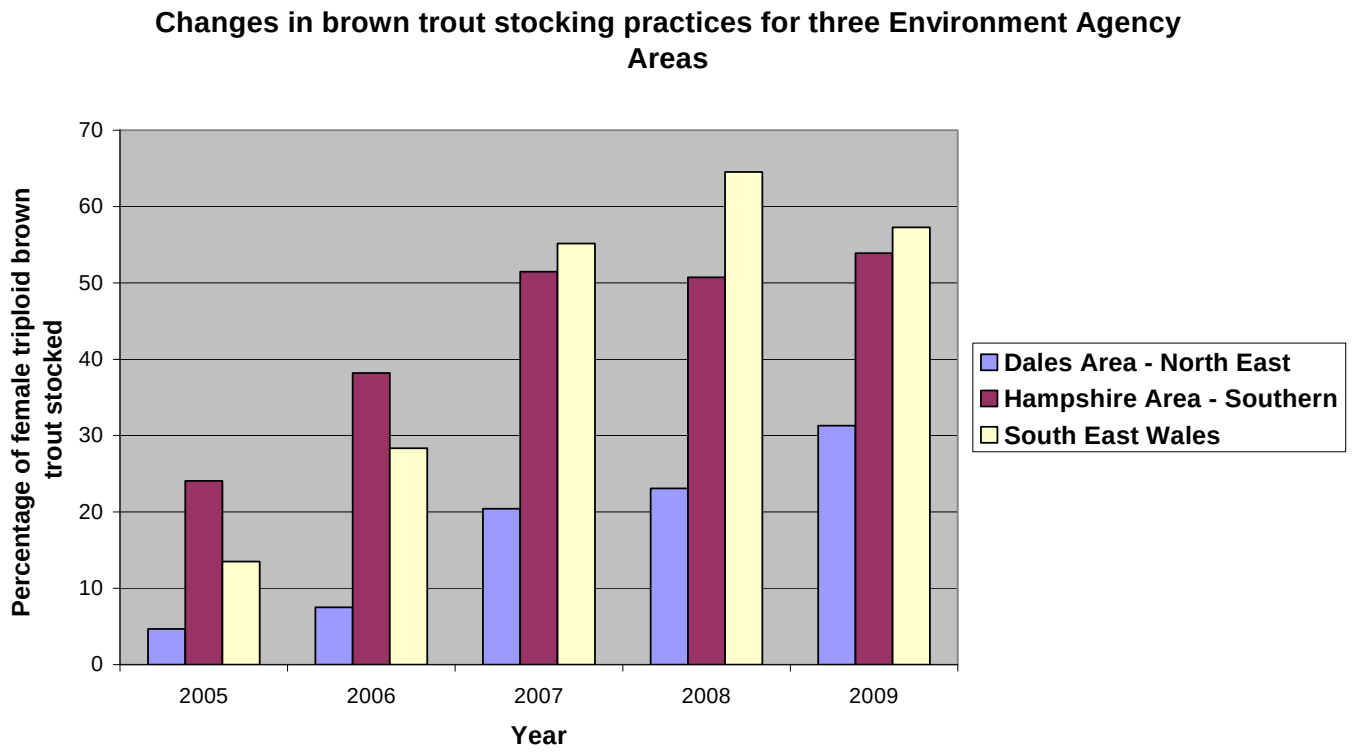
In this, our second newsletter, we want to update you on the progress of the voluntary switch to stocking with female triploid brown trout, give you some experiences of people who have made the switch to triploids and summarise other news relating to the National Trout and Grayling Fisheries Strategy.

Full details of the Strategy and our previous newsletter can be found at the following link: Environment Agency - National trout and grayling strategy, and if you would like to contact us about this newsletter you can email us at trout@environment-agency.gov.uk.

Switching from diploid to triploid brown trout

One element of the Strategy is to discontinue the stocking of fertile farm strain (diploid) brown trout into rivers and other unenclosed waters by 2015. Instead, stocking should be with non-fertile (female triploid) farm reared brown trout or the progeny of local brood-stock reared under a suitable regime. Up until 2015 we are encouraging a voluntary switch to female triploid brown trout stocking with the aim of seeing a 30% fewer fertile farm strain brown stocked by 2010 and a 50% fewer by 2013.

We have been analysing the trends in stocking over the last five years and have displayed the data from three Environment Agency Areas in the graph below.



Although these areas cover different river types, they all show an increase in female triploid brown trout being stocked. When we look at all the data for England and Wales we are confident of reaching our 2010 target and in some parts of the country over 50% of the brown trout stocked are already triploid.

Experiences of triploid brown trout users

Over the past year we have had feedback from a number of different angling organisations on their experiences with stocking triploid brown trout. For your interest we have included one here.

On the Hampshire Avon the Services Dry Fly Fishing Association has stocked triploid brown trout as a direct replacement for a proportion of their diploid brown trout stocking. In order to assess the performance of these fish, they were stocked in different areas of the 6 mile fishery and although members were aware of the plan they did not know where each component had been stocked.

Tony Wells of the Association writes: “The verdict, confirmed both in members' comments on catch returns and by our large committee, is that there was no perceptible difference in performance between our home-reared* diploids and the introduced triploids. By "performance" we mean response to surface fly (we had a superb Mayfly season), fighting quality and eating."

*for clarification this refers to farm-strain diploid fish reared at the Association's own facility.

The Piscatorial Society's approach to implementing the Strategy

In an article published in the November 2009 edition of the Salmon and Trout Association's Gamefisher magazine, Richard Sankey of the Piscatorial Society sets out how they are implementing the National Trout and Grayling Fisheries Strategy. Their approach includes:

- Communicating the science and implications of the Strategy to their members.
- Enhancing wild trout production by adopting best practices for fishery and habitat management.
- Managing fishery pressure to reduce exploitation, in-conjunction with the continued promotion of catch and release.

Central to their approach is the use of a variety of monitoring techniques, which includes the marking of some stocked fish, to inform them on how their actions are affecting the performance of their fisheries. This will enable the Society to review and refine their approach in the coming years.

”Wild Trout Trust - Trout in the Town: helping anglers and local communities to cherish their urban rivers

Trout in the Town is a UK-wide initiative that has been run by the Wild Trout Trust (WTT) since July 2008. Funded by the Esmée Fairbairn Foundation, the WTT has employed a full time programme manager (Paul Gaskell) to identify and support local Trout in the Town “chapters”. These projects aim to conserve and promote urban river corridor biodiversity using the wild trout as a recognisable and biologically sensitive totem of high quality rivers. Through habitat conservation work, specially designed educational packages (e.g. Mayfly in the classroom; click here for website link), free angling coaching, river walks, river festivals and regular trash clean ups, the Trout in the Town programme engages and educates local communities in the value of their urban green corridors. Check out what the WTT are looking for in their projects in their prioritisation strategy (click here for website link). For all enquiries please contact Paul via email p.gaskell@wildtrout.org or telephone 07919 157 267.

Urban Fishing and it's rewards

Related Research

Trees and shading of streams

On our Southern Rivers, particularly the chalkstreams and New Forest Streams, we and other organisations have been undertaking a number of pieces of work to identify how higher river temperatures may be affecting our salmonid fish populations. These have particularly focused on the role of climate change, the management of riparian vegetation and other activities which lead to river water temperature increases.

Work by Samantha Broadmeadow and colleagues (2010) on the New Forest Streams has shown that riparian shade markedly influences stream water temperature. On these streams low levels of shade (20-40%) keep summer temperatures below the incipient lethal limit for brown trout, with 80% generally keeping temperatures below the upper limit for optimum growth.

There is obviously a balance to be struck between the management of riparian vegetation to allow light into a channel to promote in-river and emergent plant growth and retaining it to provide shade and a source of woody debris. We would advocate aiming for a mosaic of un-shaded, lightly shaded and fully shaded areas for a given channel reach. The relative proportions of each of these will vary with river type, with chalkstreams perhaps requiring rather more un-shaded and lightly shaded areas to promote strong in-river plant growth.

The response of a brown trout stock and perception of anglers to cessation of brown trout stocking (Baer & Brinker 2010).

The study looked to address whether wide spread supplementary stocking is necessary to maintain recovering brown trout fisheries following water quality improvements in a previously polluted river (River Wutach, Germany), given the potential associated impacts on genetic integrity and ecological balance.

In the 1900s, the river was famous for its excellent brown trout fishing (although supported by stocking), but the fishery declined due to sewage pollution and stocking ceased in the 1950s when the stock collapsed. Water quality has improved since 1970 and stocking re-commenced with trout from various origins. Initial stocking was with takeable fish, but gradually the emphasis changed towards stocking with smaller fish, and since 1995 only broodstock from the catchment was used to produce fry and yearlings for stocking. Finally, in 2001, stocking ceased. Catch and release is not allowed and all trout taken must be killed.

The study used a combination of electrofishing surveys and angler questionnaires to assess the status of the fishery. Anglers were asked to record their catches and effort data, together with their perception of the fishery since 2001.

The results of the electrofishing surveys showed that a natural, self sustaining population was present in the river, as shown by recruitment in each year and stable densities of older fish. There was also a mean increase in harvest of brown trout after stocking stopped due to an increase in mean weight (by 11%), not associated with any changes in environmental conditions, and number of legal-sized fish (by 24%). In addition, responses from the anglers indicated that over 85% of the anglers felt that the fishery was the same or better since stocking ceased, and 57% felt that stocking was not needed to maintain a satisfactory brown trout fishery in the Wutach. Angler catch rates had also increased during the seven years after stocking ceased.

Comparison of patterns of genetic variability in wild and supportively bred stocks of brown trout (Griffiths *et al*).

The study involved genetic analysis of samples collected from 22 sites across the River Dart catchment in SW England, together with a sample of first generation offspring from approximately 20 locally sourced broodstock fish produced for stocking throughout the catchment. The results of the genetic analysis show a significant loss of genetic variation in the broodstock offspring compared to all wild populations. There was also more genetic difference between the hatchery offspring and all wild populations, including the population geographically closest to where the broodstock were sourced, than there was between wild populations. The results suggest that the hatchery process has resulted in a reduction of genetic diversity and changes to the genetic composition, despite using local broodstock, most likely caused by too few broodstock and/or selective processes in the hatchery.. This highlights the need for great care when employing supportive breeding, particularly with reference to guidelines such as broodstock numbers and factorial mating.

References

Baer J and Brinker A. 2010. The response of brown trout stocks and perception of anglers to cessation of brown trout stocking. *Fisheries Management and Ecology, 2010.*

Broadmeadow SB, Jones JG, Langford TEL, Shaw PJ and Nisbet TR. 2010. The influence of riparian shade on lowland stream water temperatures in Southern England and their viability for brown trout. *River Research and Applications, 2010*.

Griffiths AM, Bright D and Stevens JR. 2009. Comparison of patterns of genetic variability in wild and supportively bred stocks of brown trout, *Salmo trutta*. *Fisheries Management and Ecology, 2009, 16, 514-519*.