

Assessment of native brown trout swim up fry stocking on the Candover Brook, Hampshire



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Format of our presentation

- Setting the scene – Dylan Roberts
 1. *Background*
 2. *National Trout and Grayling Fisheries Strategy 2003*
 3. *Why is this work important?*
- Evaluation of native brown trout swim up fry stocking in the Candover Brook – Dr Dominic Stubbing
 1. *Objectives*
 2. *Techniques*
 3. *Preliminary year 1 data*

Brown trout stocking in England and Wales



- Trout have been reared on farms to enhance angling for over 100 years
- Estimated 430,000 Trout anglers in England and Wales
- Stocking is necessary due to insufficient numbers of wild trout to support viable fisheries
- Estimated 650,000 adult brown trout are stocked annually into rivers in England and Wales
- Some 260,000 brown trout were stocked as eggs or juveniles (swim up or fed fry)

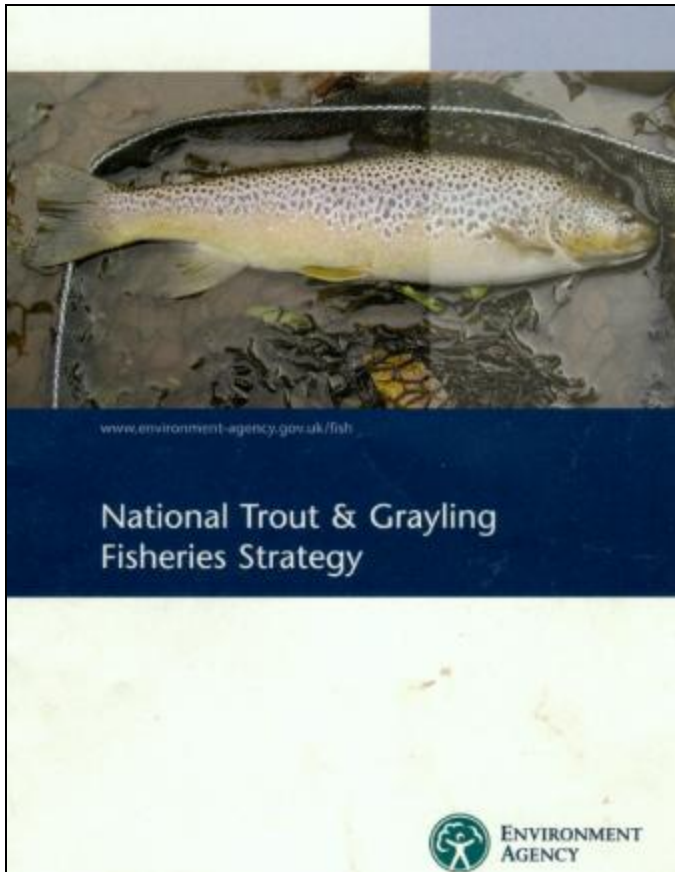


Legal requirements of stocking in England and Wales



- Most stocked brown trout are reared on fish farms
- There are strict legal controls on their introduction into rivers and lakes
- Salmon and Freshwater Fisheries Act 1975, Section 30 in England and Wales
- Environment Agency FR1 Application to introduce fish, fry or ova

Concerns regarding the effects of stocking domesticated strain farmed trout on native trout

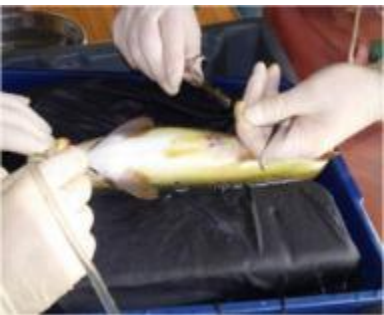


1. Stimulating an influx of predators
2. Stimulating fishing effort hence excessive exploitation of wild stocks
3. Introduction of disease
4. Competition for food and space
5. Predation by stocked fish
6. Change in the genetic composition of wild stocks through interbreeding

Farmed diploid and triploid brown trout

- Two types of brown trout currently used for stocking - diploid and triploid.
- Triploid trout are produced by subjecting the ova after fertilisation to a temperature, pressure or chemical shock (pressure shock is most successful)
- Triploids have three sets of chromosomes, as opposed to the usual two in normal diploid trout
- Triploids are infertile and hence removes the risk of interbreeding with native trout

Our research on trout stocking



1. Performance of stocked adult diploid brown trout in UK rivers 2002 - 2005
2. Effects of stocking diploid adult brown trout on wild trout in UK rivers 2002 - 2005
3. Effects of stocking diploid brown trout fed fry on wild trout fry in UK rivers 2002-2005
4. Comparisons of the performance of diploid and triploid brown trout in UK rivers 2005 - 2007
5. Interactions between stocked diploid, triploid and wild brown trout during spawning 2005- 2007
6. Diets of stocked and wild trout 2005 - 2007
7. Comparison of the fishery performance of diploid and triploid stocked brown trout 2005 -2006
8. ***Comparisons of the performance of triploid fed, unfed, winter and spring fry stocked via incubator boxes and from a fish farm***



Environment Agency trout stocking policy

- By 2015 all trout stocked into rivers in England and Wales must be triploid or of native origin reared in a suitable rearing system e.g. incubator boxes
- We have done the work on: -
 1. Adult diploid brown trout
 2. Diploid brown trout fry
 3. Adult triploid trout
 4. Doing the work on triploid fry
 5. ***Via this project we are beginning to investigate the performance of stocked native strain trout fry reared under a suitable rearing regime***

Candover Brook



Stripping salmon for hatchery boxes



Stripping wild trout for hatchery boxes



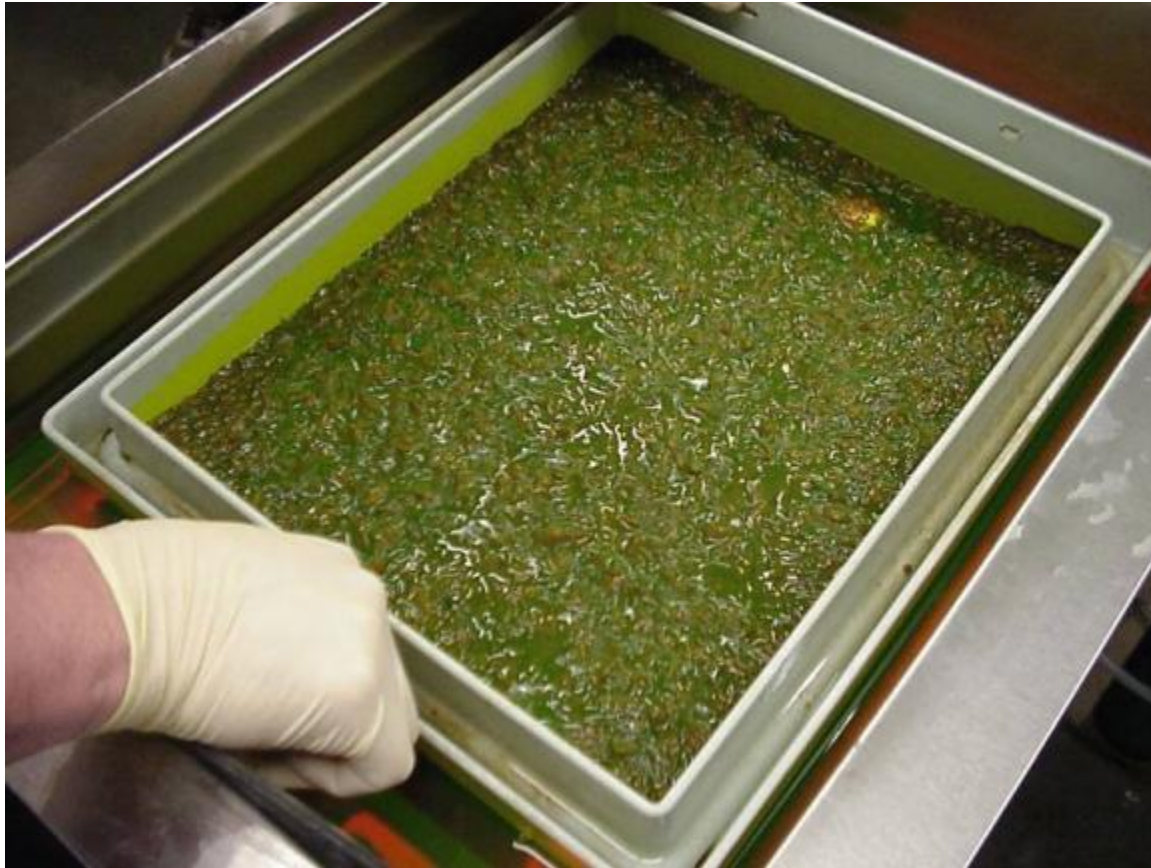
Counting eggs



Hatchery boxes ready for eggs



Marking swim-up fry



Unfenced river



Fenced river



Electric fishing



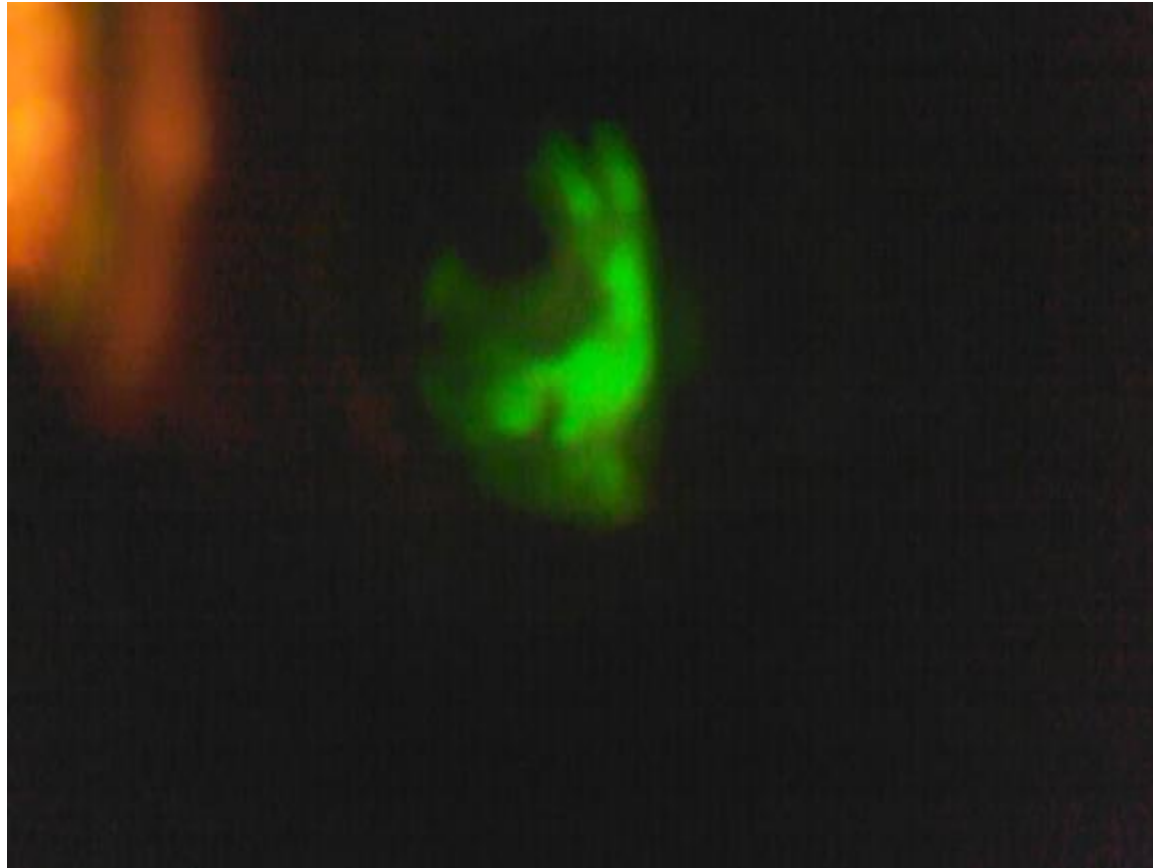
Mark detector



Looking for marks in the dark



Calcein mark

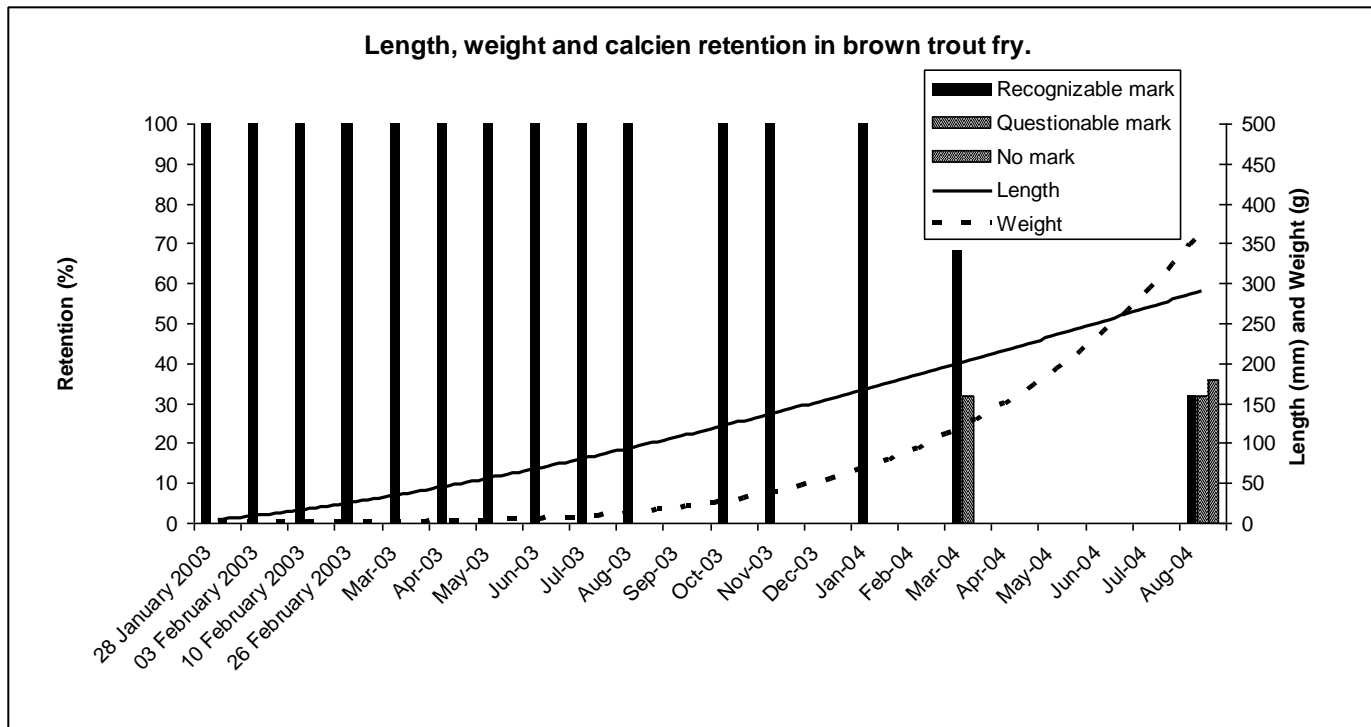


Elastomer marking

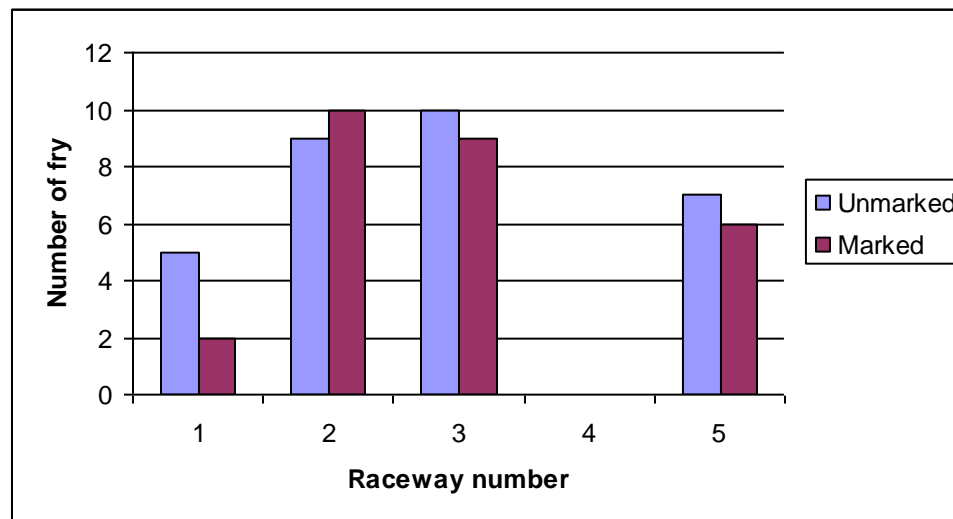


Calcein retention

- 100% of trout were marked at 12 months, after which some became questionable.
- Some fish still have marks at 18 months and have reached 1lb.

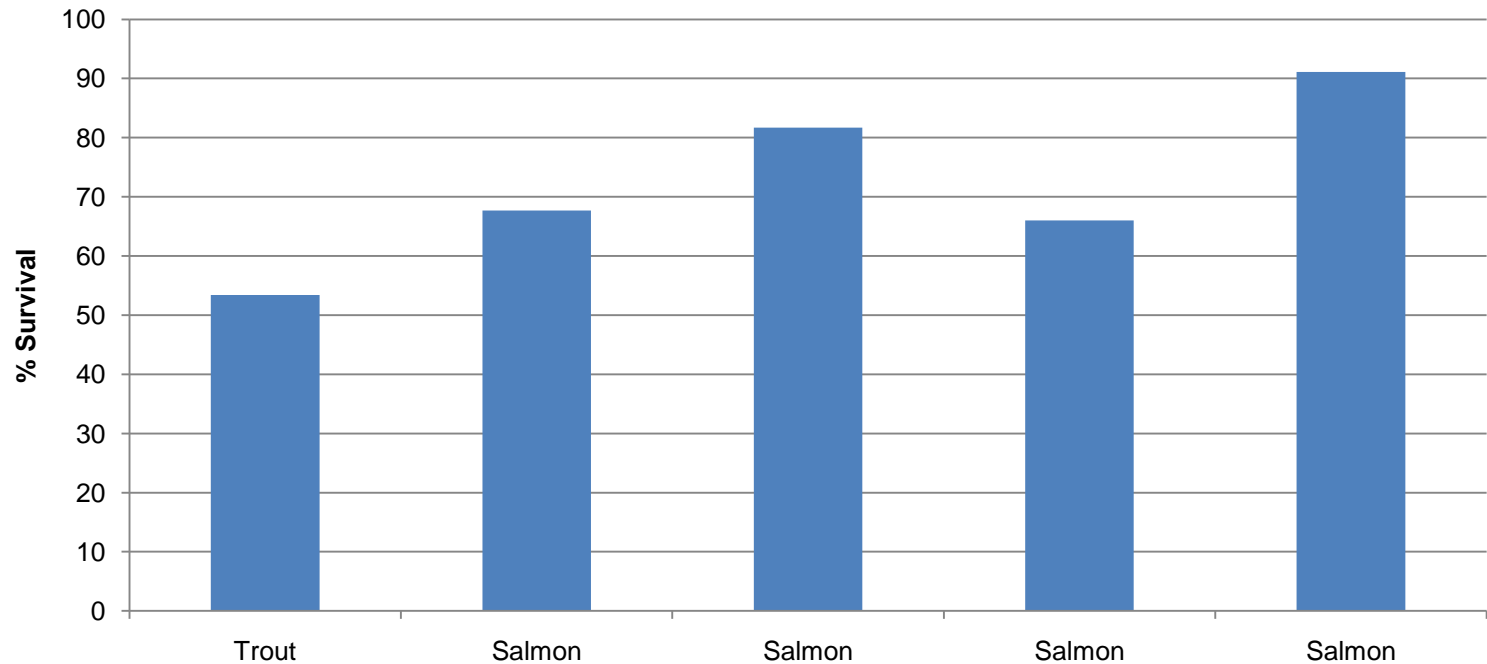


Numbers of surviving brown trout fry in raceways with adult brown trout.

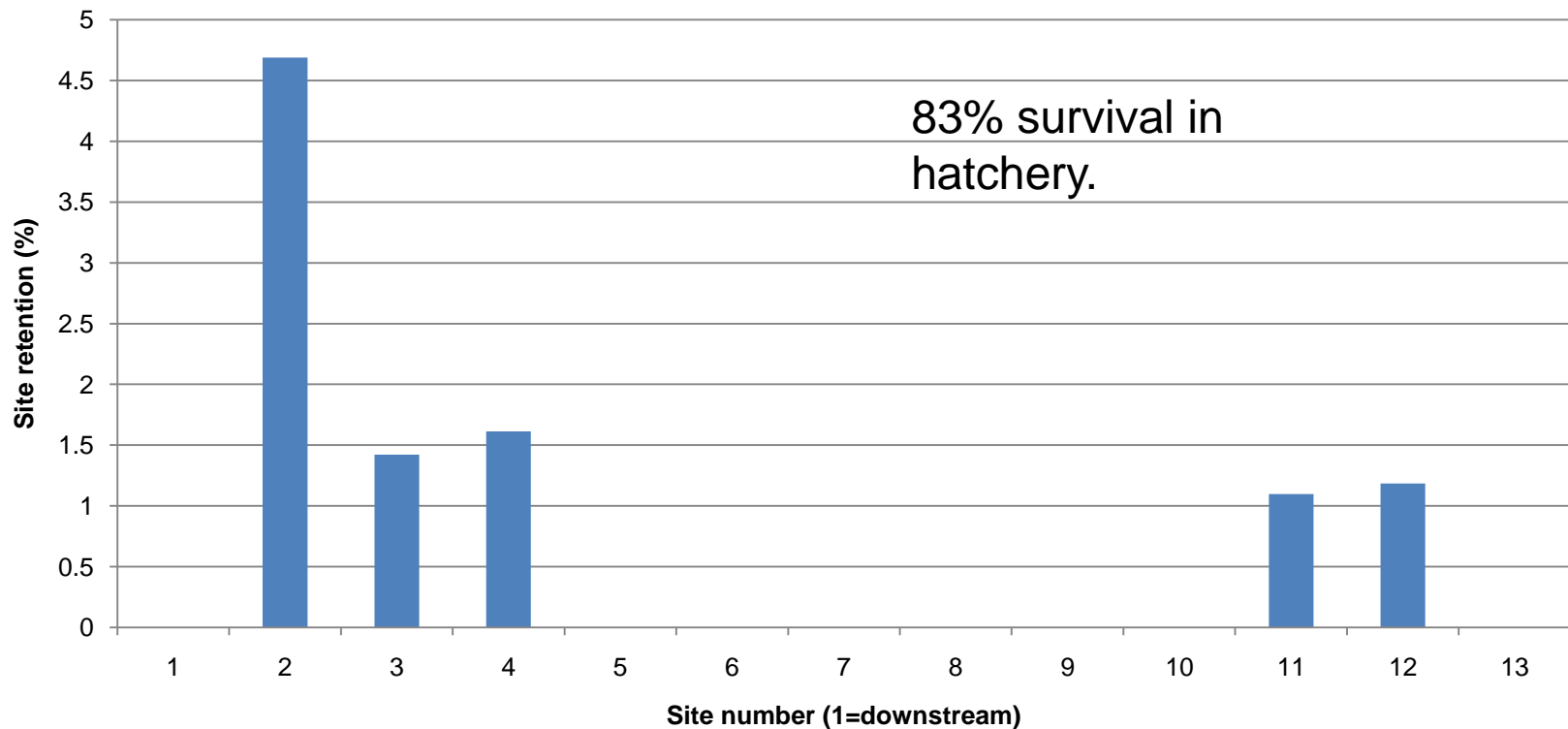


$P = 0.294$
 $t = 1.206$

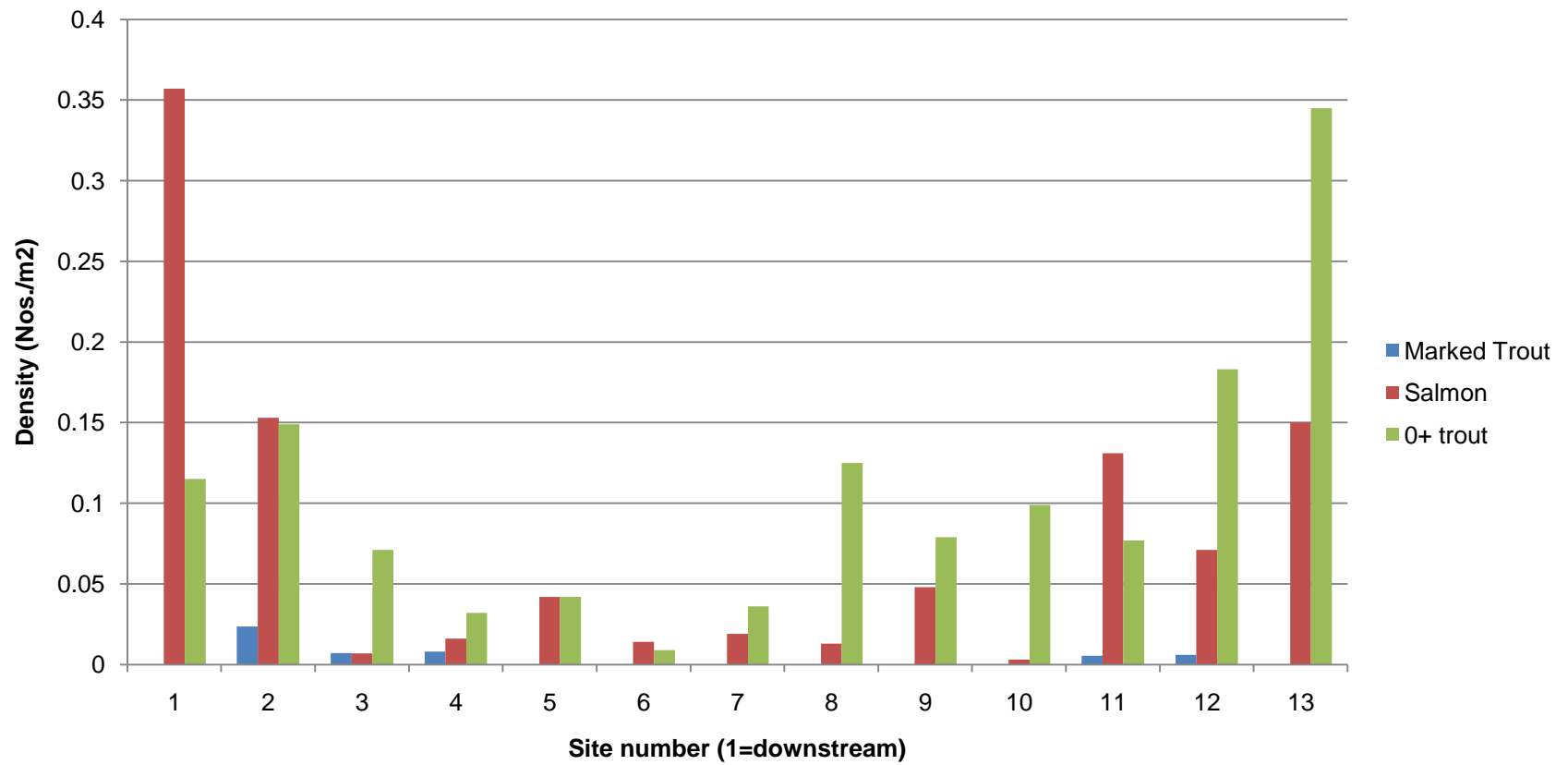
Hatchery box survival



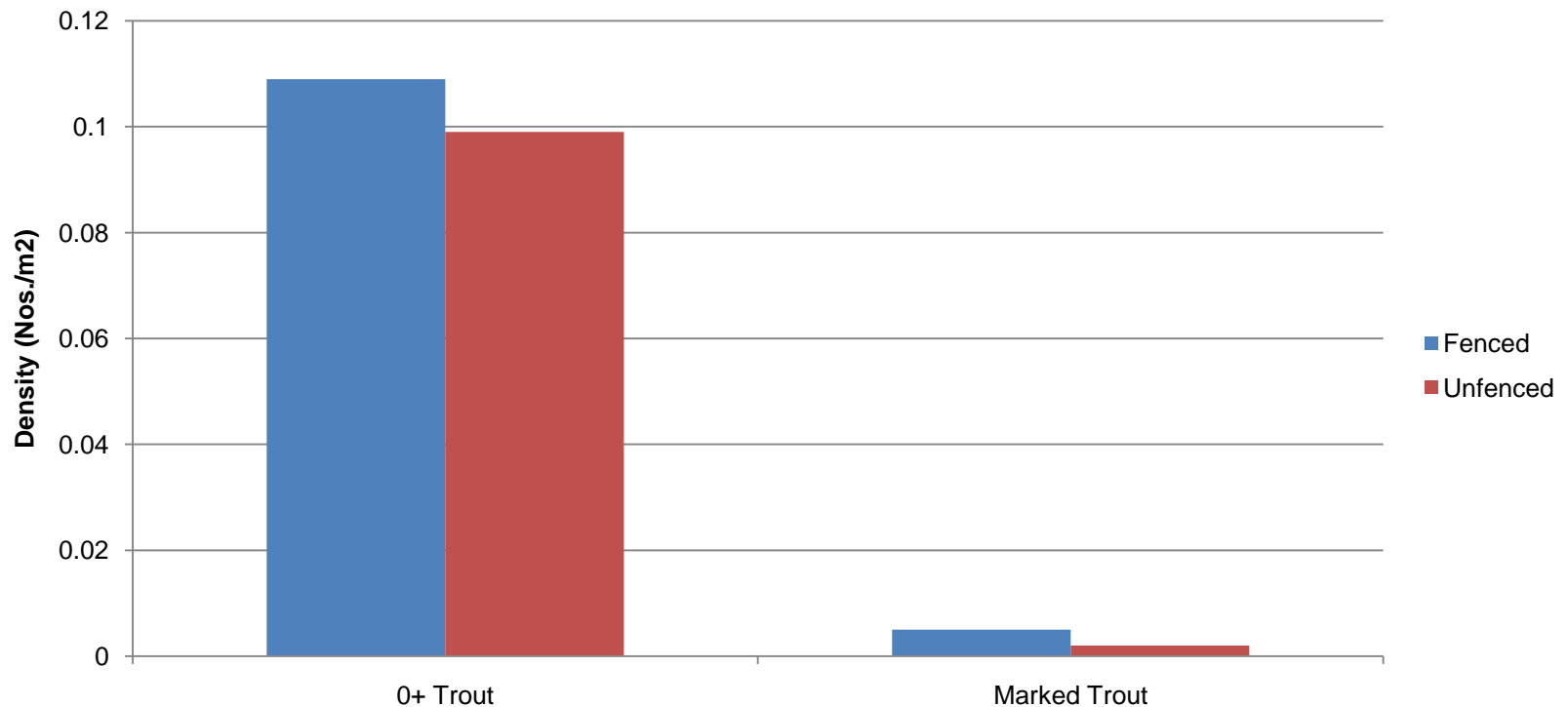
Site retention of marked trout



Densities of trout and salmon



Densities of trout in fenced and unfenced sites.



Acknowledgements

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- **The Grange**
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