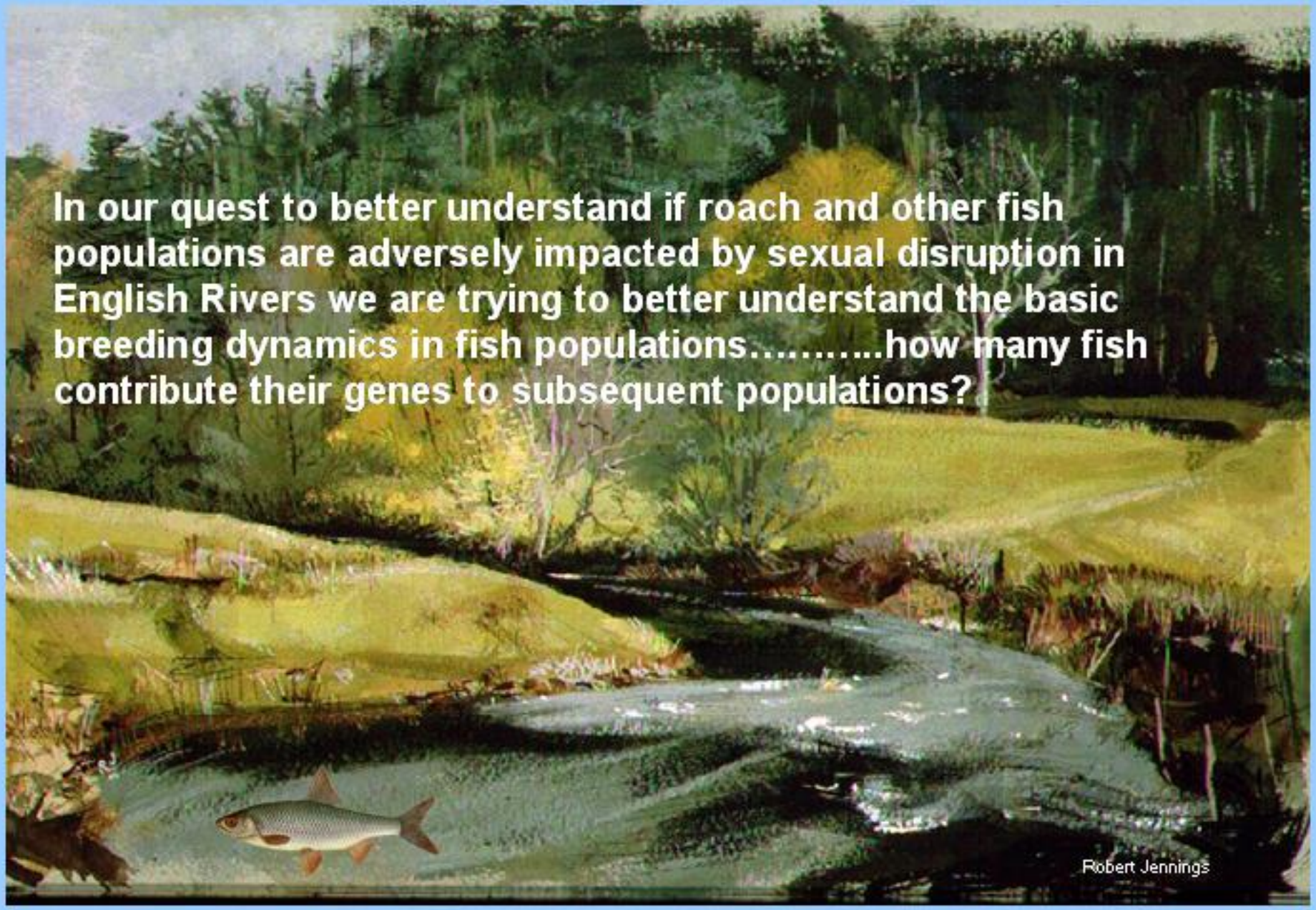
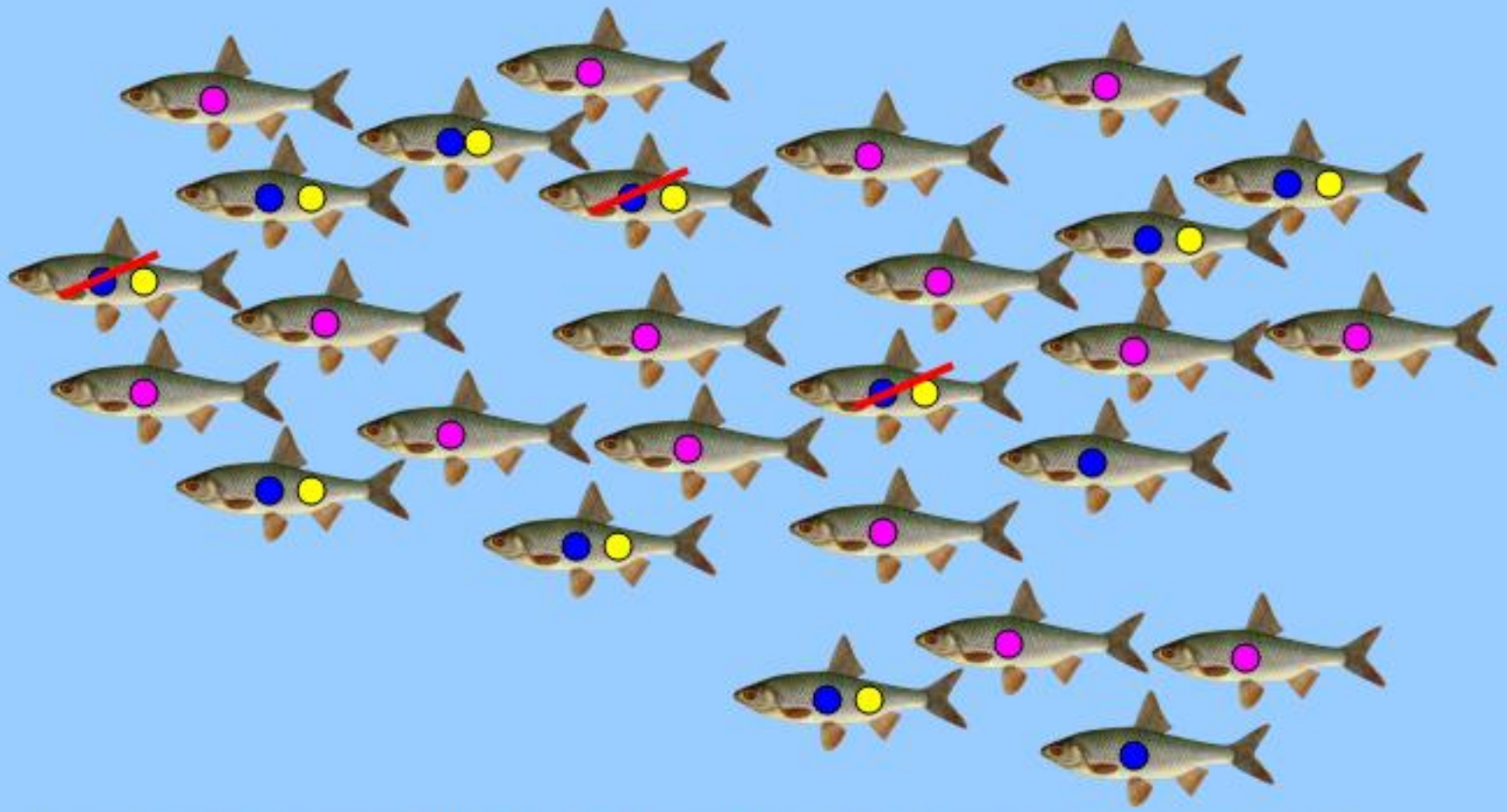
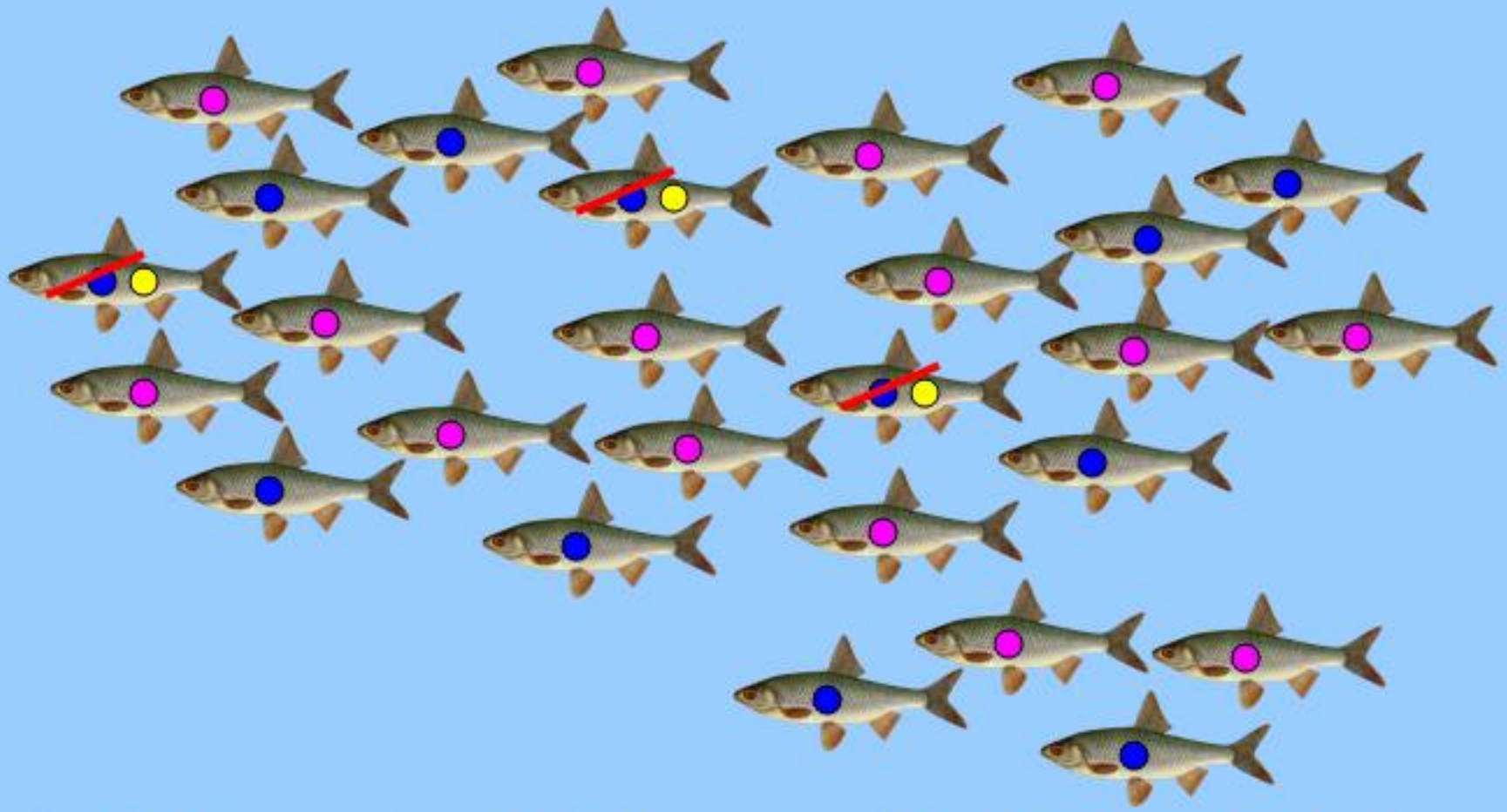

In our quest to better understand if roach and other fish populations are adversely impacted by sexual disruption in English Rivers we are trying to better understand the basic breeding dynamics in fish populations……..how many fish contribute their genes to subsequent populations?
Robert Jennings

What is the effect of sexual disruption on parentage of populations?



If many males contribute to the parentage then even a low incidence of intersex might impact on the genetic variability of subsequent populations

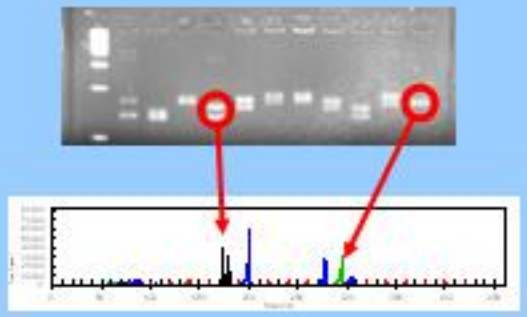
What are the effects of sexual disruption on parentage and the genetic integrity of populations?



If only a few males contribute to the parentage then a low incidence of intersex might not impact on the genetic variability of subsequent populations

Understanding the basic biology of fish breeding systems…

In a model system



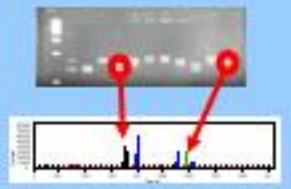
What are DNA microsats?

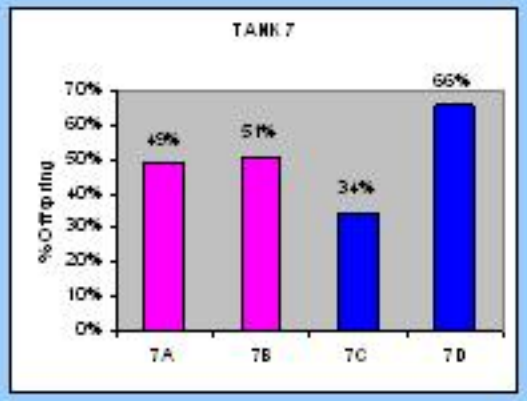
- *Tandemly arrayed non-coding sequences.*
- *Allelic variations of microsats are codominant and show Mendelian inheritance.*
- *Microsatellie loci often have many alleles and show high heterozygocity, so parentage may be ascertained unambiguously using a few microsat markers*

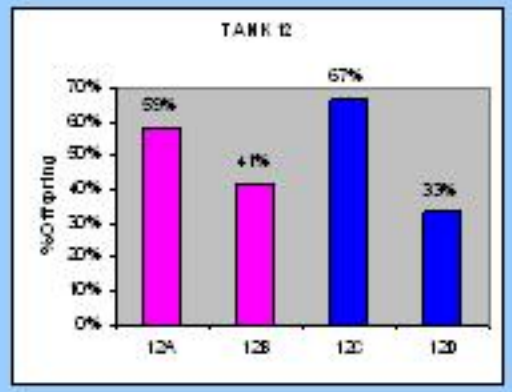
DNA microsatellite markers to assess the normal breeding system in zebrafish colonies

Understanding the basic biology of fish breeding systems …..
Parentage in colonies of zebrafish (our model system).

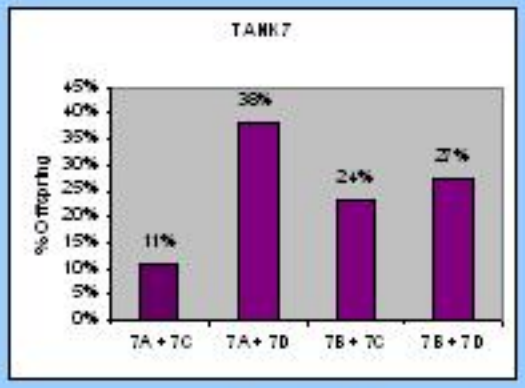
(2 males and 2 females)

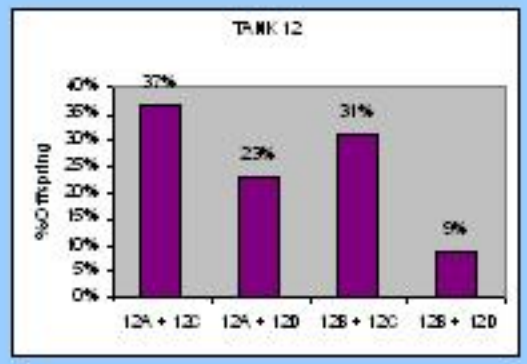






Breeding success



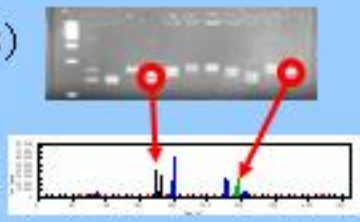


Mate Choice

C and D – males, A and B - females

Effects of sexual disruption on parentage and genetic integrity of populations …..

In a model system (Expanded to multiple males and females)



We will then assess the impacts of EDCs on male fitness (parentage)

In Roach Populations

We are now starting to apply this principle to understand the breeding dynamics and the impact of intersex on parentage in roach populations