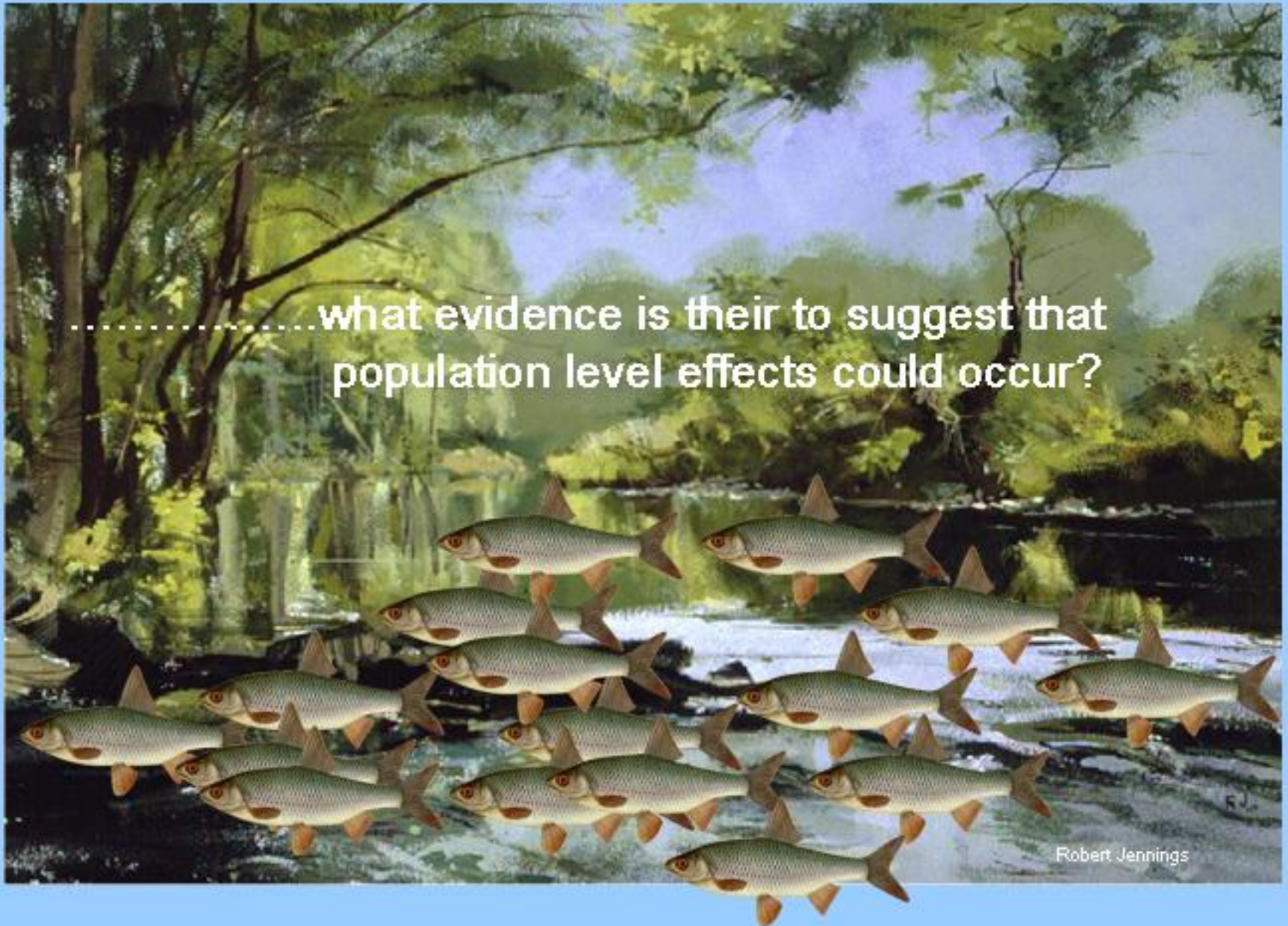


Population level impacts of Sexual Disruption n Roach

..... what evidence is there to suggest that population level effects could occur?

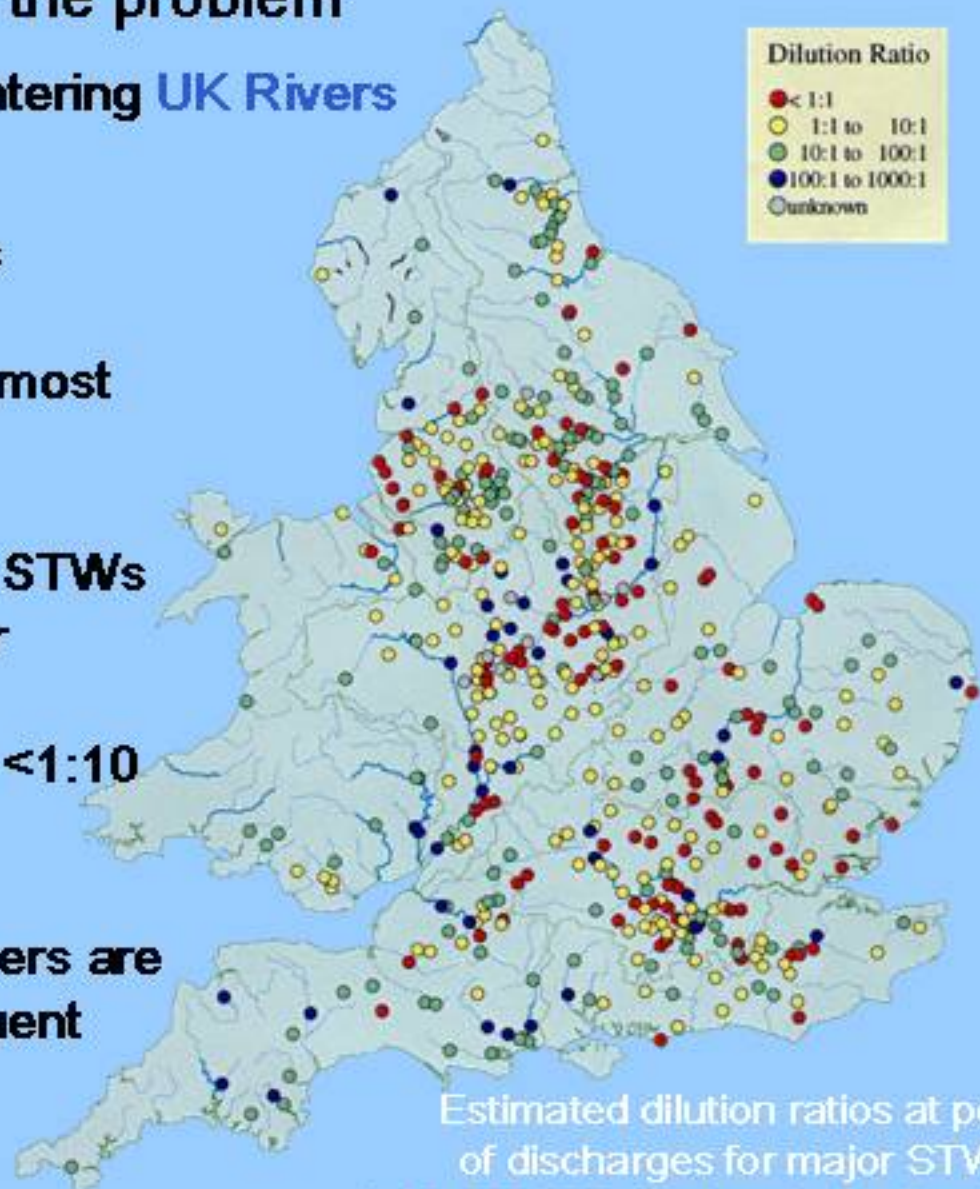


Robert Jennings

The **scale** of the problem

Treated Sewage Effluents entering **UK Rivers**

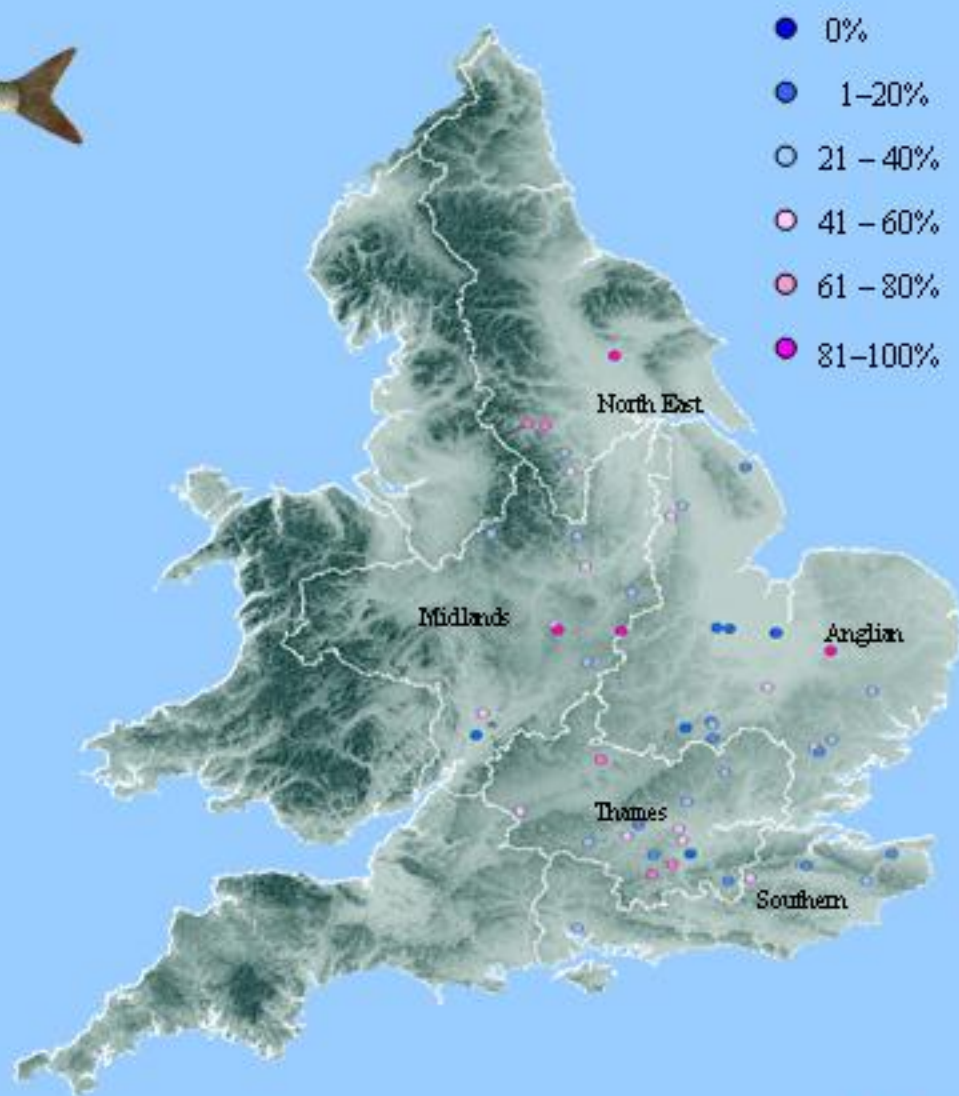
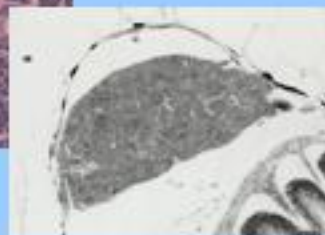
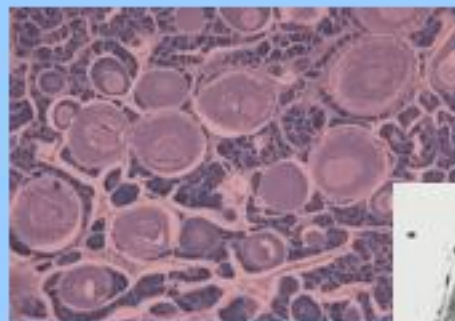
- 70 000 consented discharges
- 6500 from STWs..but for the most part treatment is good.
- 10 000ML water used daily in STWsand increasing 2% per year
- Many STWs effluents diluted $<1:10$ -in rivers
- At times of low flow some rivers are comprised of $>80\%$ STWs effluent



| Dilution Ratio | |
|----------------|-----------------|
| ● | < 1:1 |
| ● | 1:1 to 10:1 |
| ● | 10:1 to 100:1 |
| ● | 100:1 to 1000:1 |
| ● | unknown |

Estimated dilution ratios at point of discharges for major STWs (>10,000 PE) discharging to freshwaters

The 'problem' of sexual disruption in Roach in English Rivers is extensive



Synopsis of findings

1615 fish sampled - Intersex present at 44 (86%) of 51 sites

- 117 intersex fish with abnormal reproductive ducts*
- 140 intersex with fish oocytes in testes*