

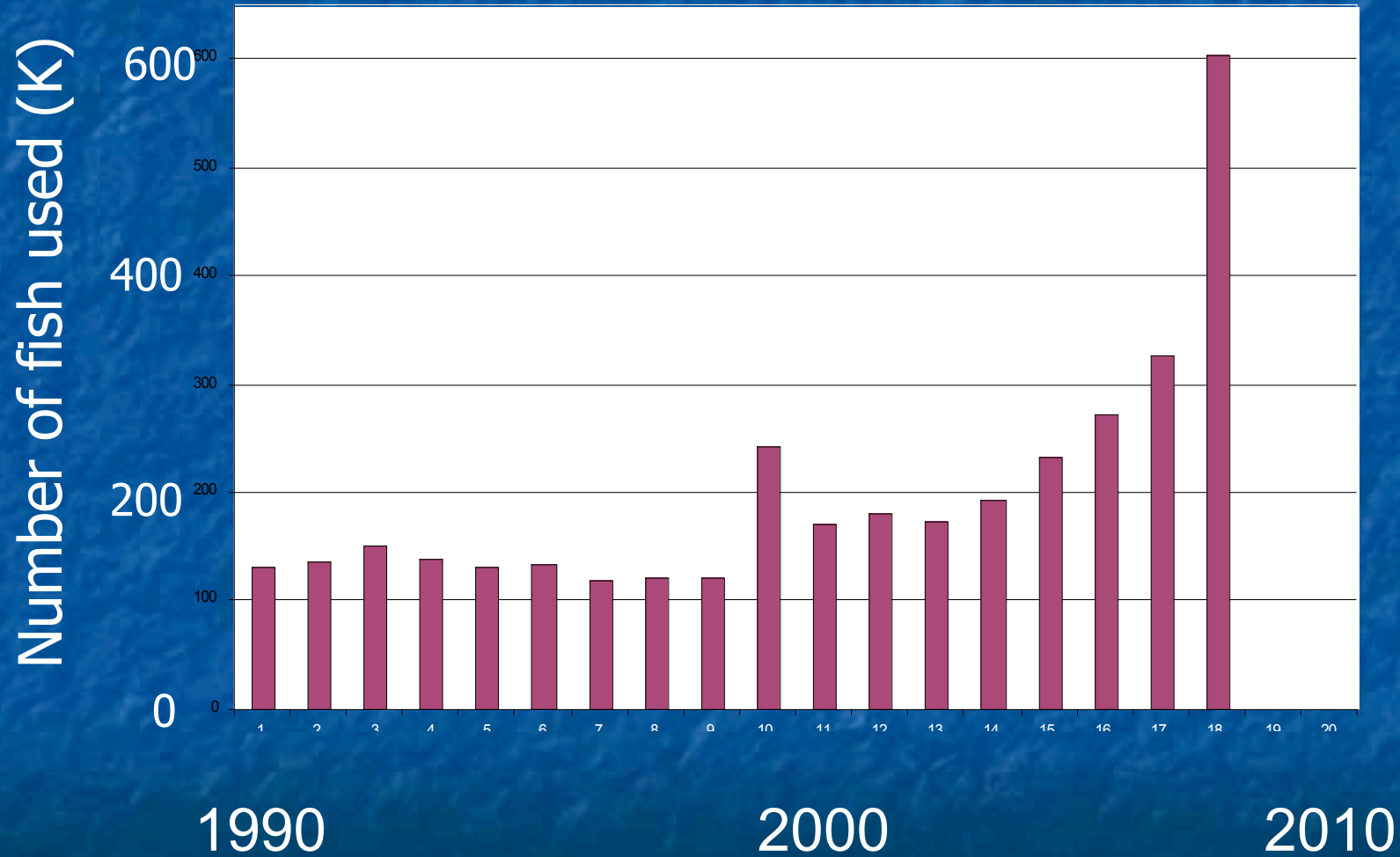
Inspection of Fish Facilities in the UK

Dr Kathy Ryder

Animals (Scientific Procedures) Inspector

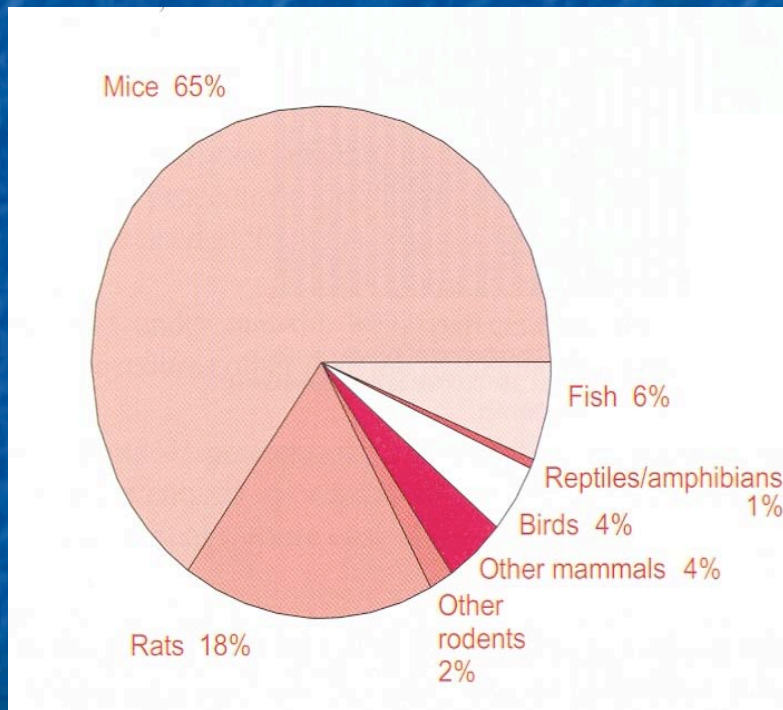
Home Office, UK

Numbers of fish used

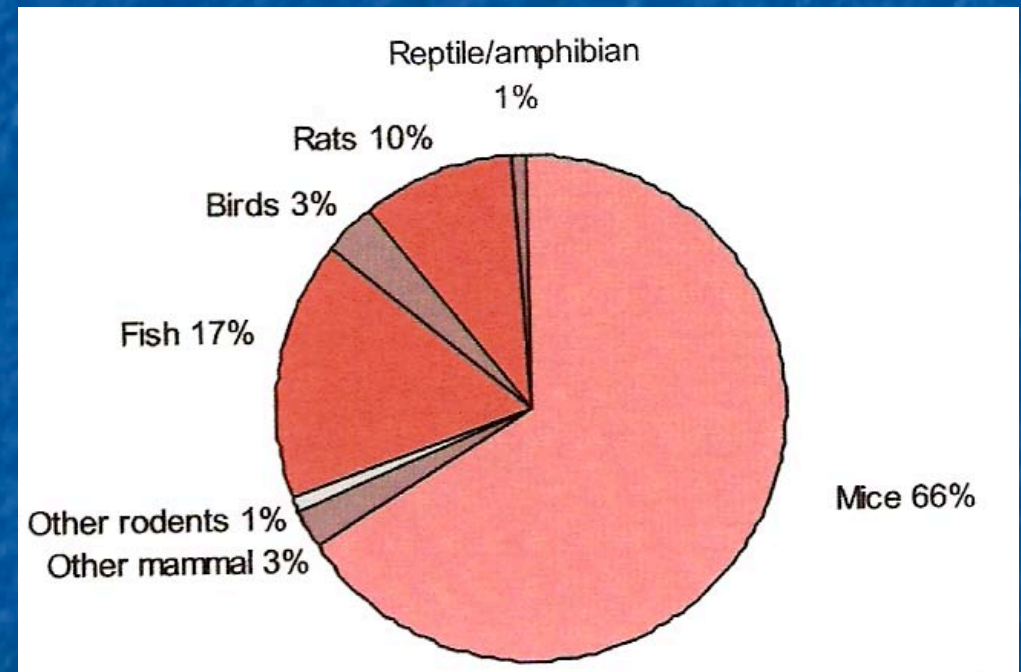


Proportion of Animals used

2005



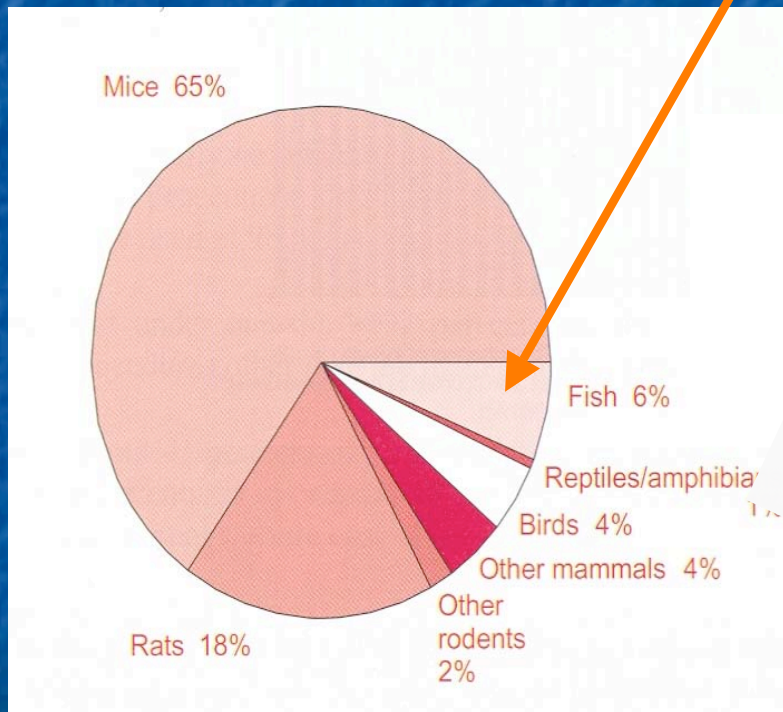
2008



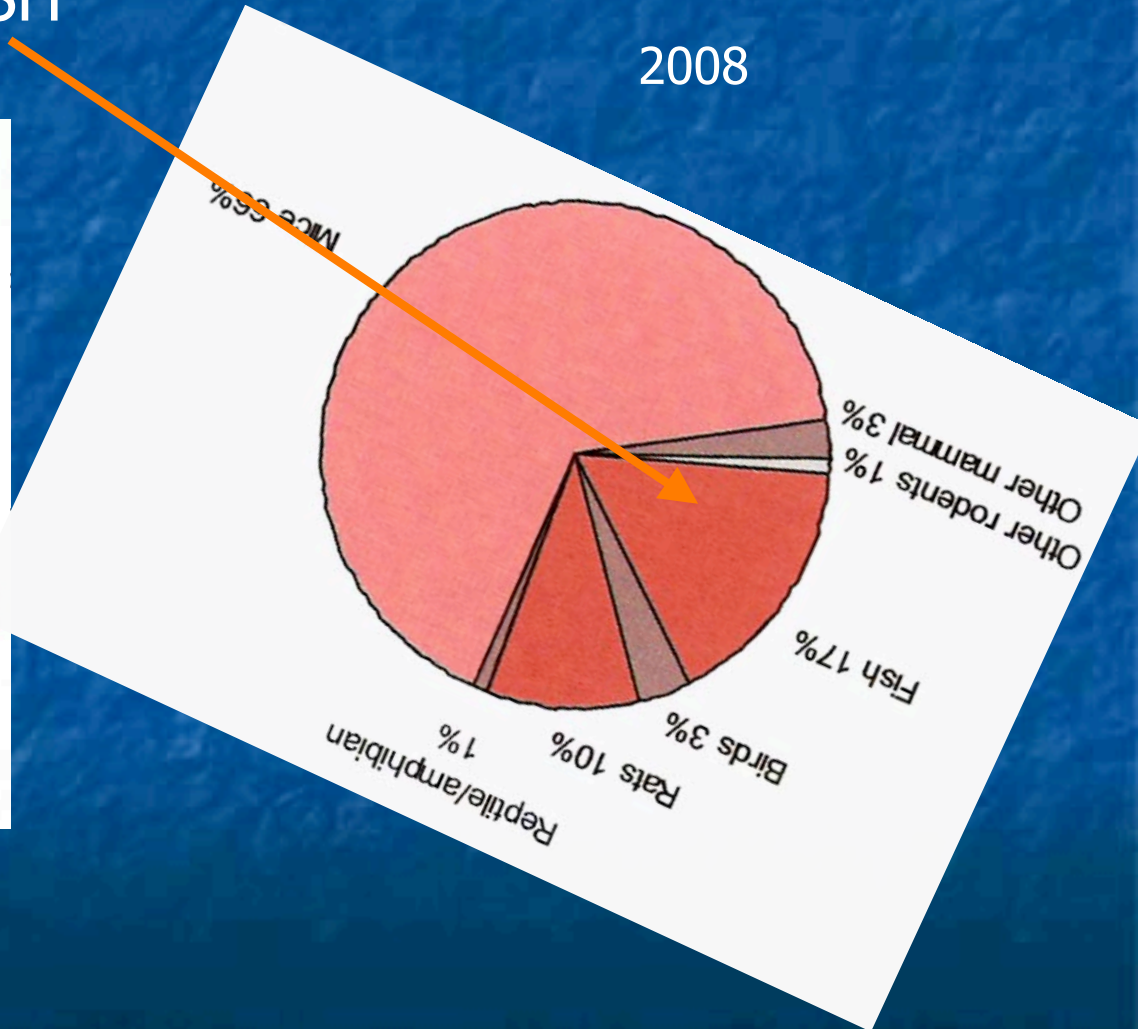
Proportion of Animals used

FISH

2005



2008



Type of experiments

	2005	2008
■ Applied Veterinary Medicine	32K	9K
■ Protection of man, animals or environment	42K	34K
■ Fundamental biological research	70K	244K
■ Breeding	26K	123K
■ Applied Studies – human medicine		194K

Species

Sea water

Freshwater

Tropical

Zebrafish

Cichlids

Temperate

Salmon

Salmon

Cod

Trout

Turbot

Stickleback

Sheepshead Minnows

Fathead Minnows

Changes since 2005

- Communications
- Enrichment
- Facilities
- Legislation
 - Driving 3Rs
 - “Cosmetics” – Chronic Tox & Endocrine Disruption
 - Council of Europe - Welfare of Farmed Animals – Fish
 - Directive 86/609 Revision - Minimum standards for fish
 - Increasing numbers of experimental fish
 - European Water Directive
 - Ecoprotection

Communications

- Fish Care Staff Meetings
- Networks of animal care staff
- Laboratory Animal Science Association Meeting
- Network of vets - VOLE
- Fish Veterinary Society
- Zebrafish Networks

Zebrafish

- 2005 - multi-species units
- 2008 – increase in single species units
- Frameworks
 - speciesism
- Culture
 - Farming
 - Science / 3Rs
- Level of Training

Consideration of individual species

- Natural behaviours
 - Every day
 - Breeding
 - Alarm / distress
- Species dependent
- Age dependent

Environmental Enrichment

- Evidence
- Use

Examples

- Challenge:
 - Is the housing of sheephead minnows in a tank filled only with good quality water the most refined method of husbandry?











Biosecurity

- Is it needed?
- What is needed?
- How is disease “prevented”?

Facility Design and Build



Old vs Newer



Why is disease a problem?

- To scientists
 - Inability to finish study
 - Variability
 - Not repeatable
 - Time to repeat
 - Poor quality science
 - Meaningless
- To vets and animal care staff
 - Disease – Welfare problems
 - Colony affected - supply
 - Carrier state

To Regulators:

- 3Rs
- legislation to prevent disease spread

Notifiable diseases

- **List 1**

- Infectious Salmon Anaemia (ISA)

- **List II Diseases**

- Viral Haemorrhagic Septicaemia (VHS)
- Infectious Haematopoietic Necrosis (IHN)

- **List III Diseases**

- Spring Viraemia of Carp (SVC)
- Gyrodactylosis (caused by *G. Salaria*)
- Bacterial Kidney Disease (BKD)
- Furunculosis in Salmon (FRC)
- Infectious Pancreatic Necrosis (IPN) in salmon

Towards SPF fish?

- Listed diseases
- *Mycobacterium marinum*
- *Microsporidium*??
- Infectious Pancreatic Necrosis
- Fungal Infections

Sourcing / Screening

- Origin
 - Open / closed colony
 - Documented disease-free status
- Quarantine adequate?
 - Isolation
 - How long?
- Examinations
 - New consignments
 - Regular screening

Precautions - Fish & Water

- Bleach eggs
- Non-movement of adults
- Sterilize the water
- Minimise contact between different tanks
 - Fish
 - Water
- Adequate disposal procedures
 - Fish
 - Water
- Protocols?

Precautions - Equipment

- Clean and Sterilise
 - Nets
 - Siphons
 - Enrichment
- Have enough
- Use appropriate disinfectants (timing)
- Adequate disposal procedures
- Protocols?

Precautions - People

- Minimum numbers of people
- Footbaths
- Protective clothing
 - Shoes
 - Coats
 - Gloves
 - Purpose
 - Effectiveness
- Disposal procedures
- Wash hands and arms
- Protocols?

Backups

- What happens when it all goes wrong?

Fail safe

Fail dangerous

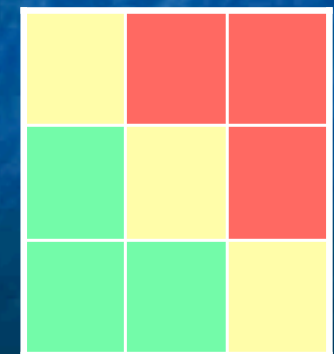
What Home Office Requires

- System dependent
- Know the system and the species
- Analyse the system
 - Fail safe
 - Fail unsafe
- Welfare consequences
 - What
 - How long

Action

- “Emergency plan”
- Welfare of fish
 - Ensure interventions
 - Within appropriate timeframe
- Justification for **not** putting in backups
 - Risk
 - Consequences
 - (Expense)

Consequence



Incidence

Sampling for DNA

- Genetic fingerprinting
- Not Identification