



REPORTING FISH EXPERIMENTS:

ARE NATIONAL STATISTICS ADEQUATE?

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NARA

Norwegian Animal Research Authority



Norwegian system

- NARA Central Board
- Appointed Competent Persons
 - approve studies within their facility
 - have to notify NARA immediately
 - NARA can stop studies if not in compliance
- Approved facilities & "field studies"



Norwegian system

- Need better systems
- Prioritise alternative methods!
- Co-operation between all parties involved
- Number of fish used for research purposes to be lower than today
- Building Competence in Care & Use



Statistics

National

European Convention (Council of Europe, ETS 123)

- Appendix B

European Union (Harmonisation of tables)

Norway:

- Modified EC-statistics
 - Statistics for "non-experimental"
and animals exposed to pain.
-



Research animals (Norway)

Fish and their free-living immature stages are protected against unnecessary pain and suffering by the Norwegian "Regulation on animal experimentation" (§1 and 3)

Exceptions:

- recognized clinical procedures (§2)
- simple marking, blood sampling etc., not affecting their **normal way of life** or causing **only temporary slight pain or discomfort** (§2)
- breeding/rearing, feeding and environmental experiments, not producing a **non-physiological state** (§2)
- fertilized eggs (§3)



Research animals: Statistics (EC and Norway)

Table 1: Number by **species** and **source** including **reused** animals (3-4 columns + total)

Table 2: Number used for **selected purposes** (5 or 6 columns+total)

Table 3: **Further classification** of item 4 in table 2 (5-8 columns)

Table 4: Animals used in procedures concerning **diseases and disorders** (4 or 5 columns)

Table 5: Number of animals used in procedures required by law (4 columns)



”Non-experimental” animals: Statistics (Norway)

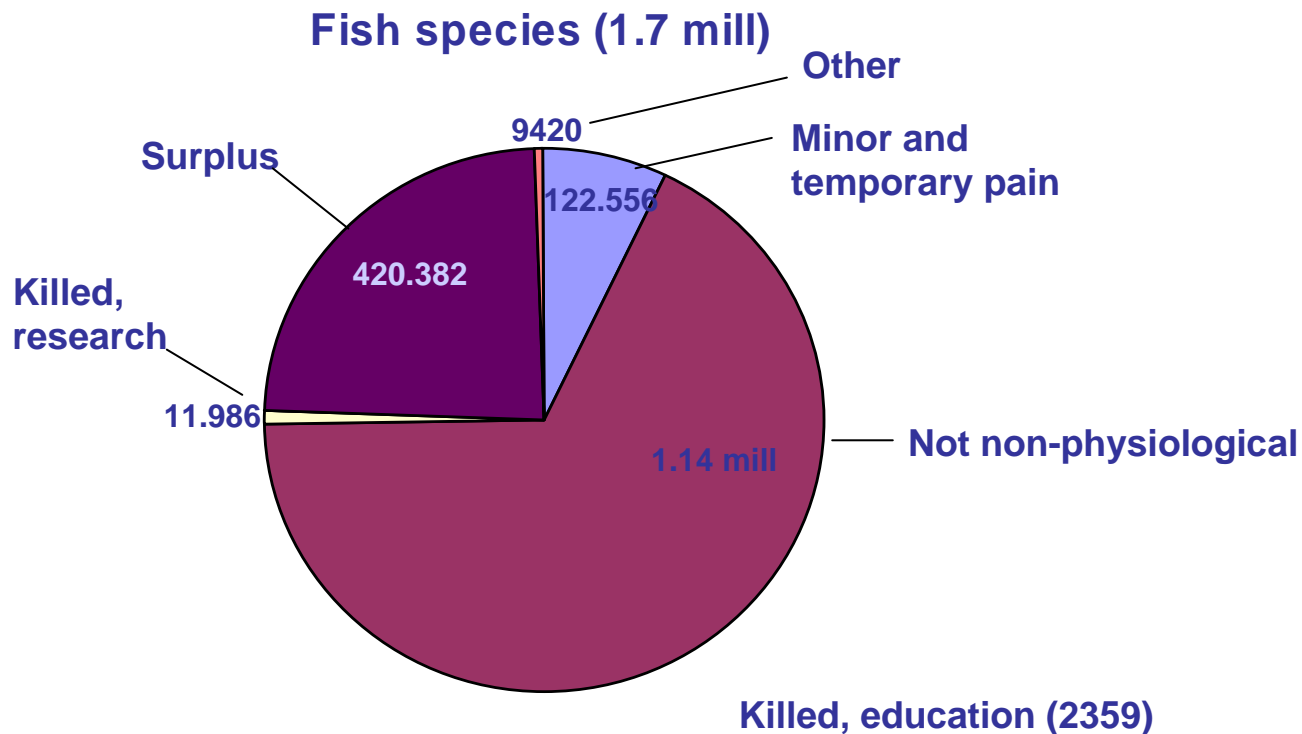
1. Simple ID-marking, blood samples etc. not disturbing the animal’s normal life situation or causing only **very minor and short term pain or discomfort**
2. Procedures concerning breeding, nutrition or environment, that do not result in a **non-physiological condition**
3. Animals **killed without prior treatment**, the aim being **research**
4. Animals **killed without prior treatment**, the aim being **education or training**
5. **Surplus animals** – animals that for various reasons have not been used
6. **Others** (e.g. health monitoring)



Yearly report 2003 (Norway): "Non-experimental" animals

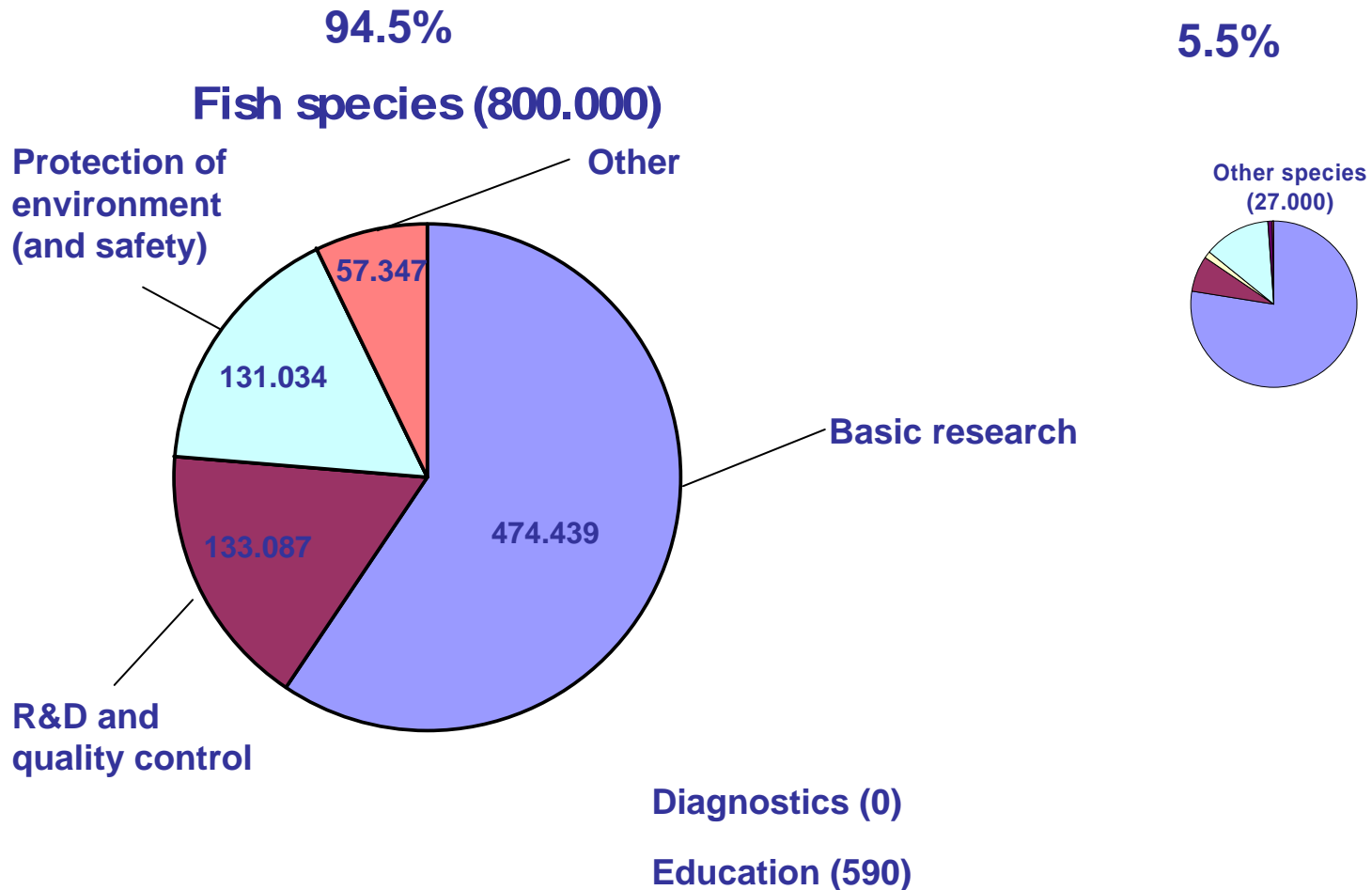
98.4%

1.6%





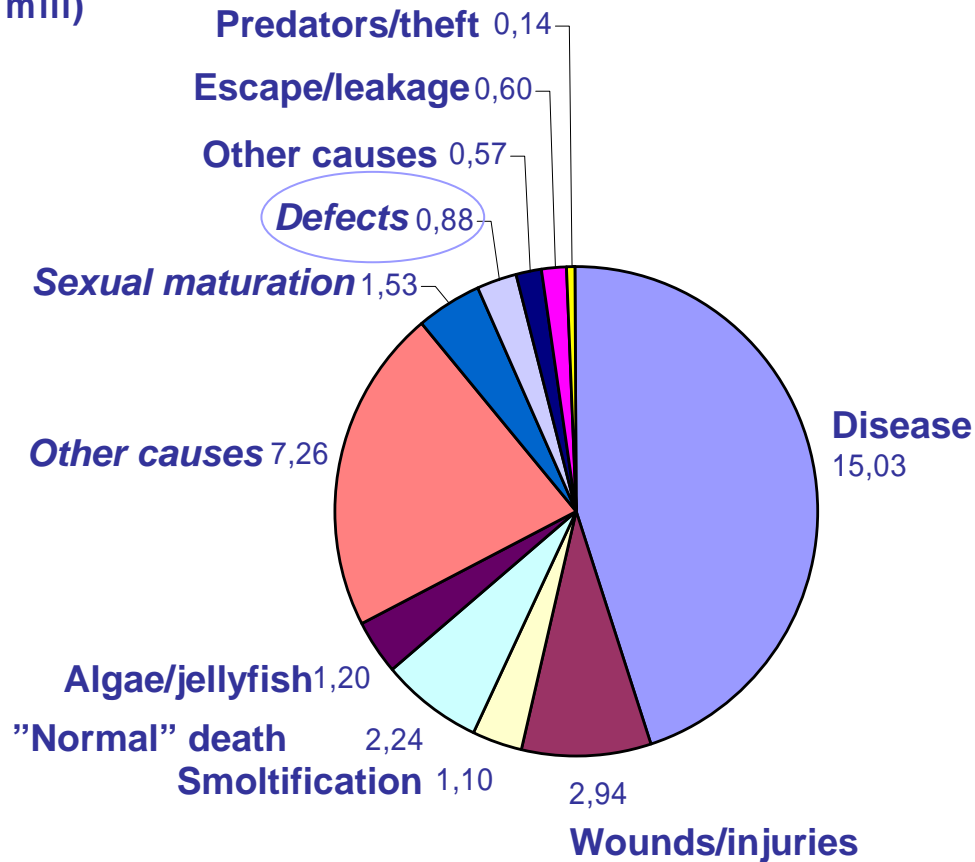
Yearly report 2003(Norway): Research animals





Aquaculture, sea: Losses 2003

Numbers in millions!
(total: 34.77 mill)





Review of yearly report 2003: Method

Number of fish in **yearly report** from each lab (summary of experiments) and each field experiment (NARA files)

Number and **species** of fish in applications (NARA files)

Filling in "gaps" (competent person in labs and by project leader in field experiments)



Research fish FIELD (2003)

Number of research fish according to		
application	yearly report	reviewed yearly report
1000	123	123
25	25	25
max 20	19	19
	500	500
7350	-	7350
max 20	18	18
50	50	50
50	64	64
28	28	28
15	0	0
30000	-	15,000
175	-	175
10	0	0
6000	6000	6000
application 2002	16	16
40	40	40
900	900	1800
1	1	1
max 120	17	17
20	19	19
application 2001	66,364	0
50	50	50
400	300	300
5	5	5
part is lacking	-	6
1250	-	1250
80000	-	81,676
75-125	-	124
27	-	27
495	-	550
Summary	71,579	115,233

yearly report on results, not numbers

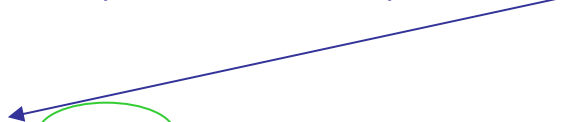
yearly report on results, not numbers

yearly report on results, not numbers

reported at the end of experiment

planned to report at the end of experiment. Today, not research animal

115,233 - 81,676 = 33,557





Research fish Animal unit (2003)

Number of research fish in accordance with		
application	yearly report	reviewed yearly report
-	0	0
-	5837	5837
-	0	0
1850	1882	1882
-	2000	2000
-	300	300
160	435	435
2486	2006	2006
962	940	940
6700	7780	7780
-	401,160	1,160
-	0	0
21618	20621	20621
954	954	954
432	432	432
10	270	270
18620	36620	36620
application 2002	120517	120517
54737	67062	67062
-	0	0
-	37,659	0
9141	12,173	10,190
-	1200	1200
3440	2370	2370
-	0	0
ca 6000 (block 2003)	1250	1250
2000	1450	1450
Summary	724,918	277,496

Hatching and start-feeding experiments
(not non-physiological)

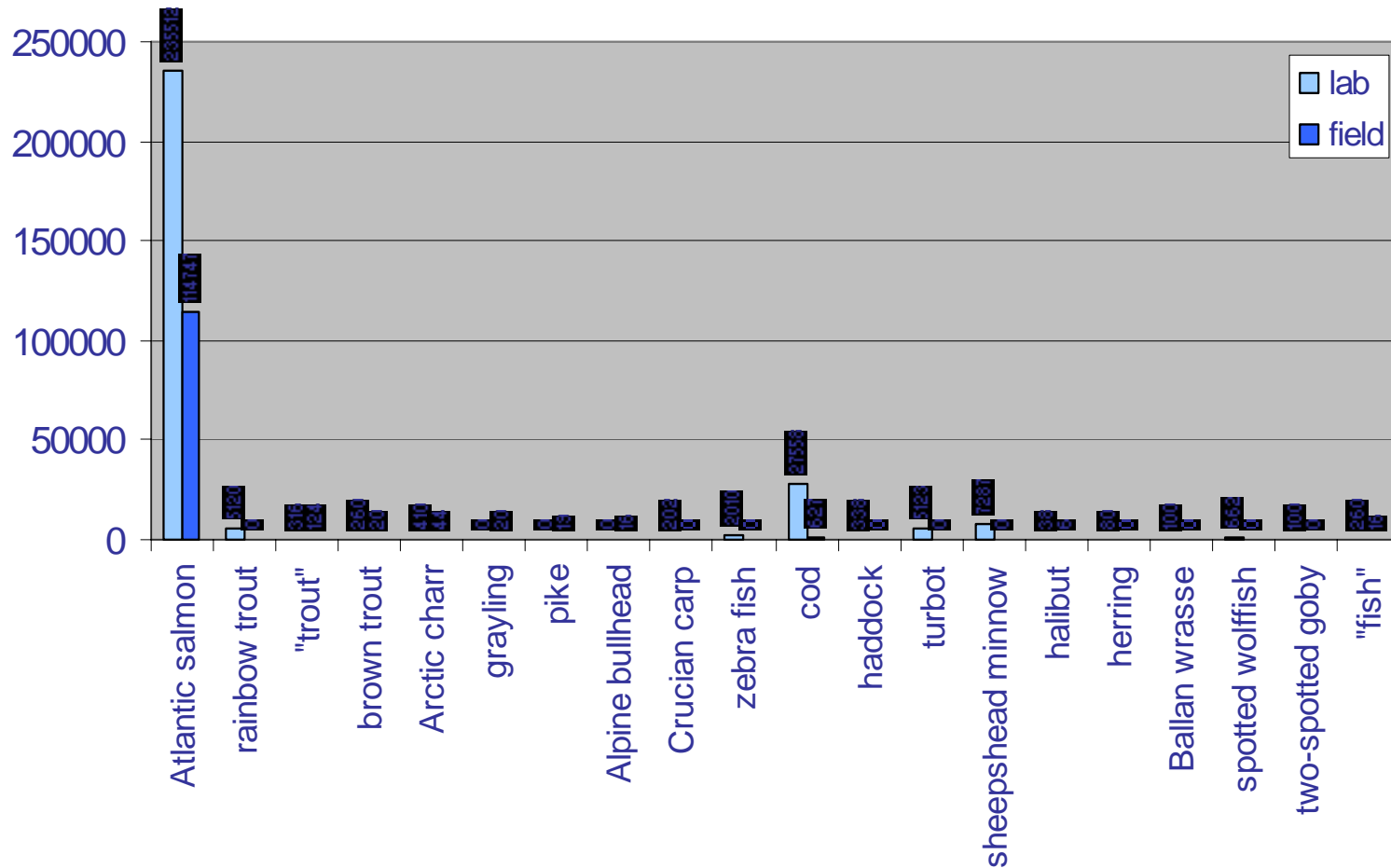
Feeding experiments (not non-physiological)



Reviewed number of research fish (2003)

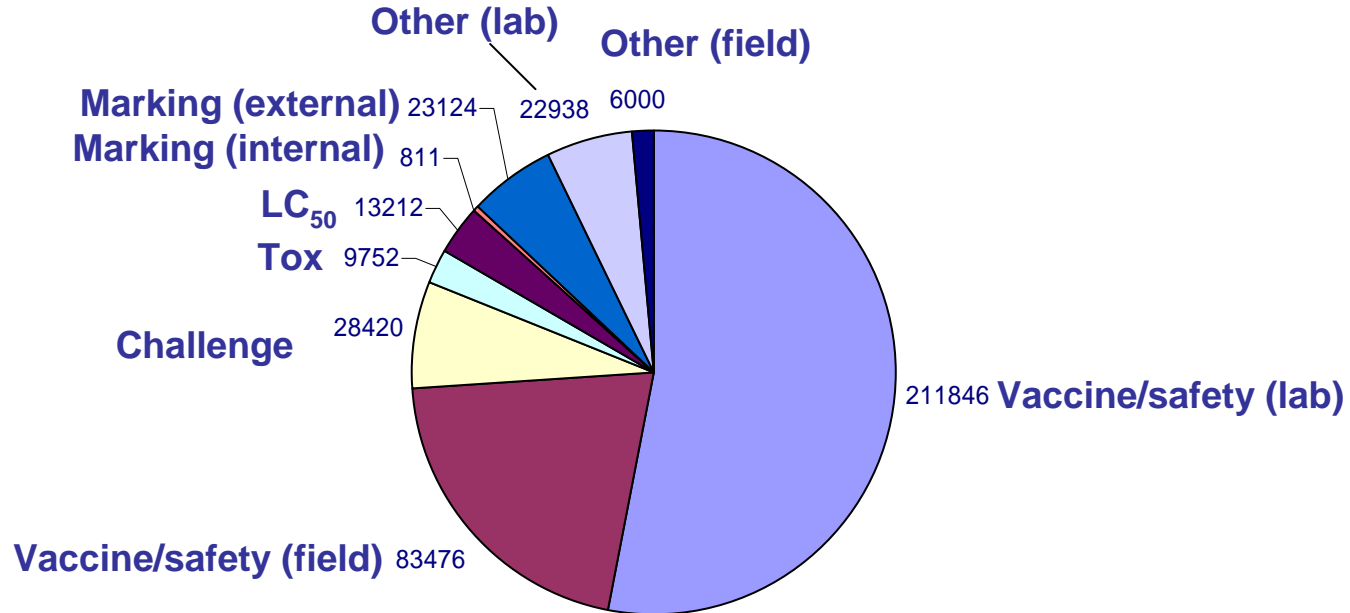
	Yearly report	Reviewed yearly report
Animal unit	724,918	277,496
Field	71,579	115,233 or 33,557
Total	796,497	392,729 or 311,054

Which species of fish did we use for research? (reviewed numbers)





What did we use research fish for? (reviewed numbers)





Summary/Conclusions

- Reviewed yearly report (2003):
 - research fish: 400,500 (vs. 800,000)
 - "non-experimental" fish: 2.1 (vs. 1.7 mill)
 - 18 species used
 - highest number of salmon, followed by cod

- Better/clearer directives about what is an experimental animal. In practice!

- Better reporting and publication systems



Thanks to:

Adrian Smith

Renate Johansen

Norwegian Food Safety Authority

Thanks for your attention!
