



# RAISING FISH WITH CARE

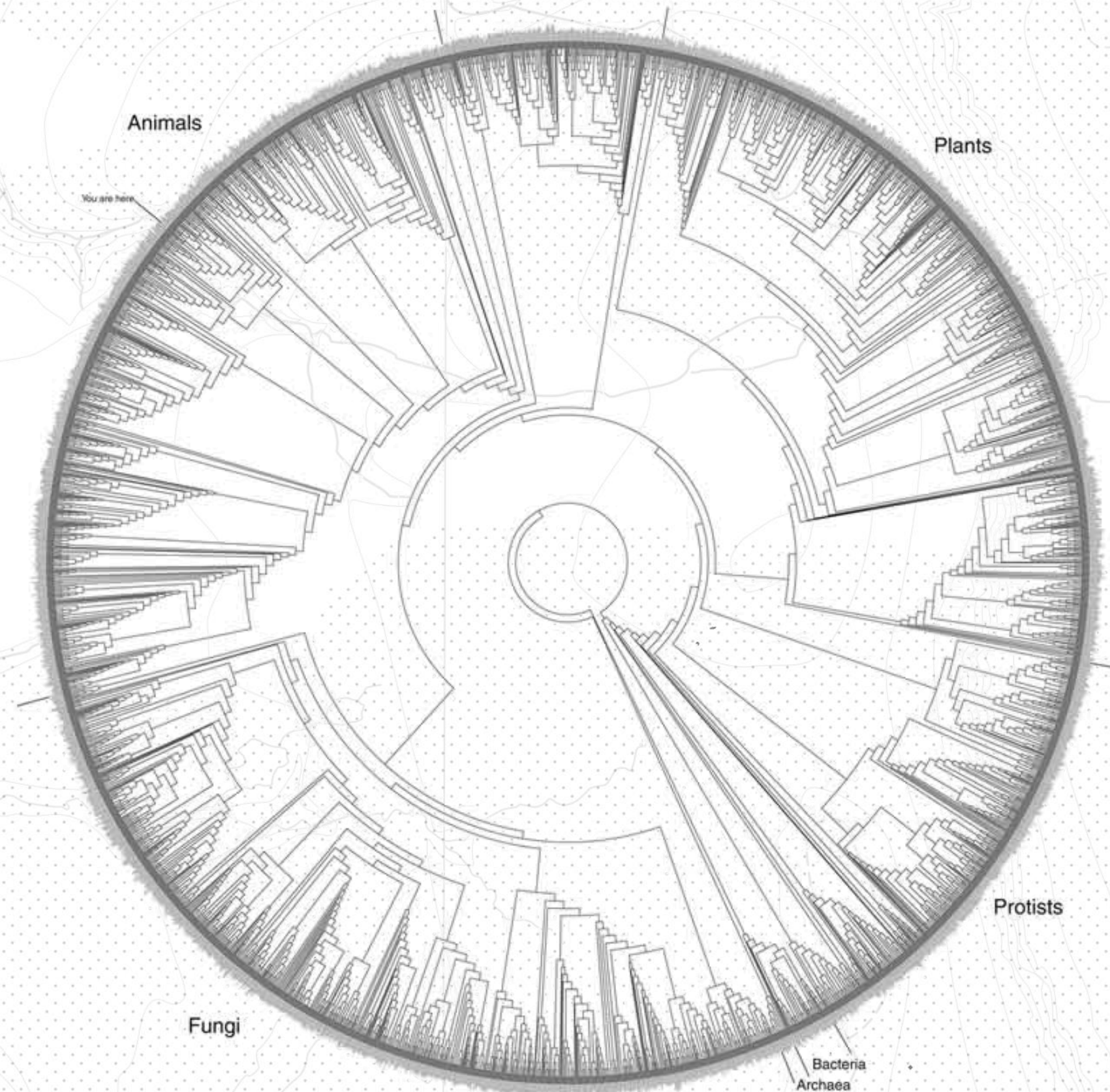
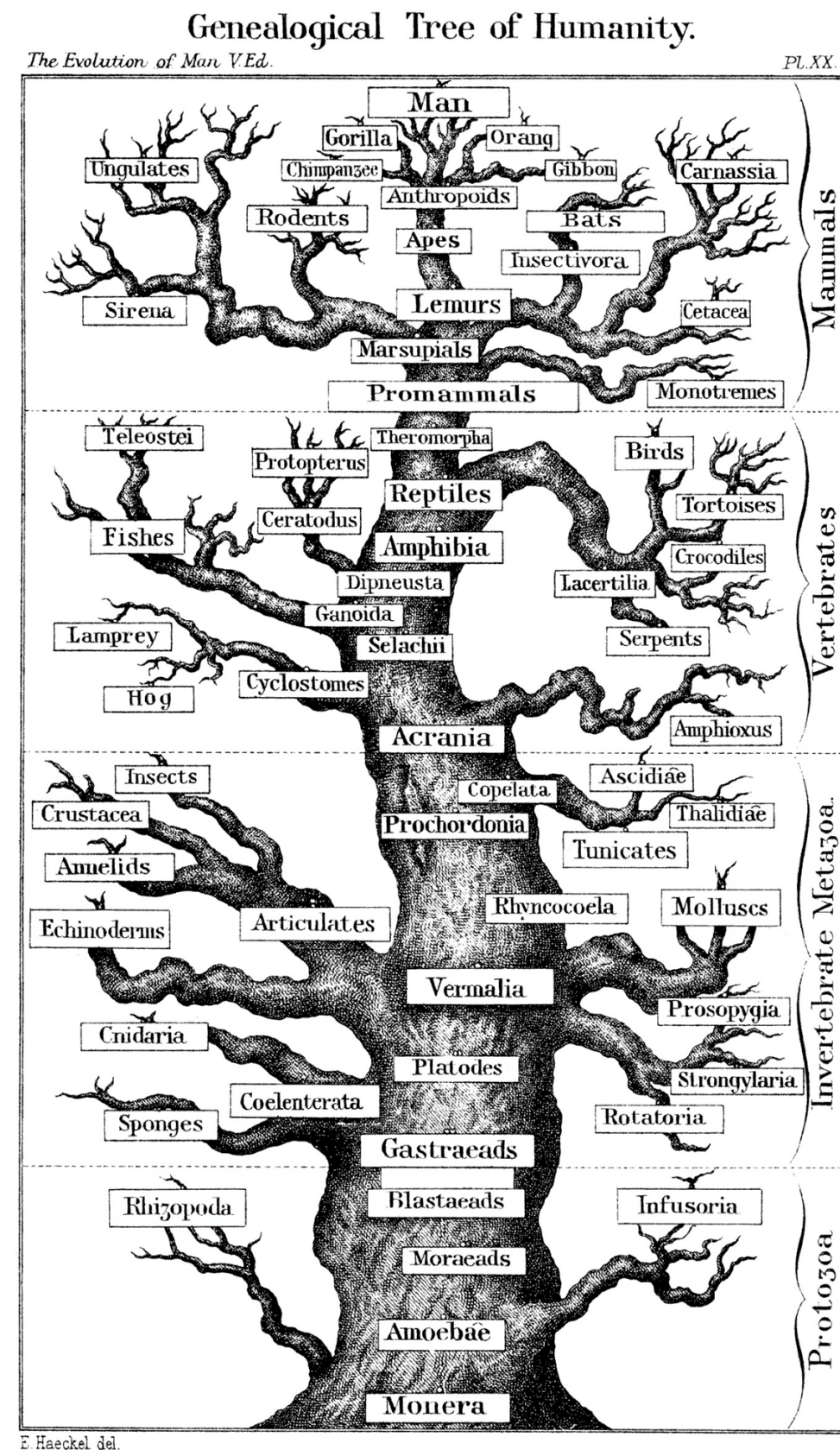
THE FUNDAMENTALS OF ANIMAL WELFARE IN AQUACULTURE

*Jesse Trushenski, Director of Science*



RIVERENCE

# CHANGING VIEWS OF LIFE ON EARTH



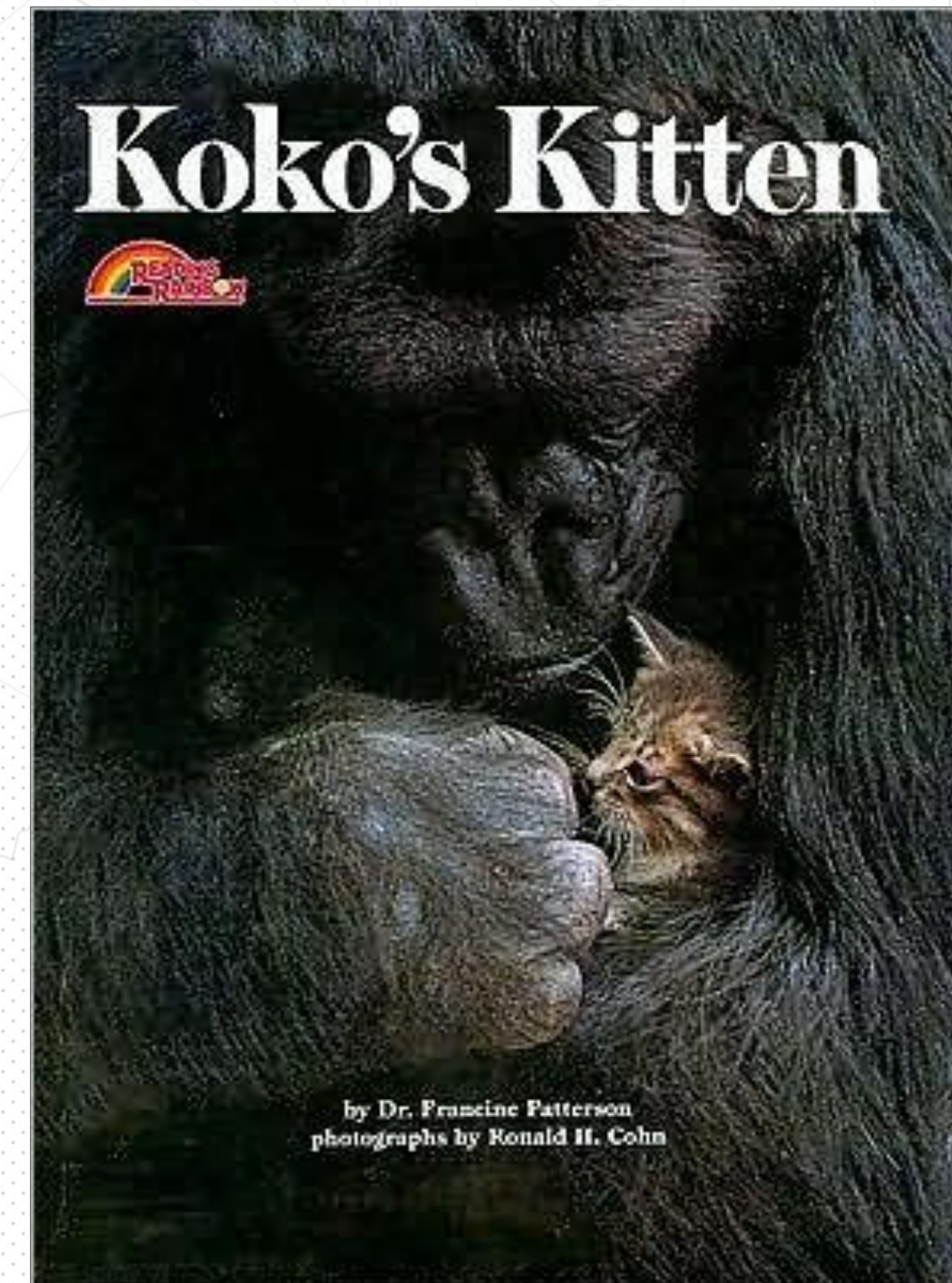
MODERN MEASURES REVEAL UNEXPECTED SIMILARITY

HUMANS ARE NO MORE THAN 0.1% DIFFERENT FROM EACH OTHER  
OF OUR DNA WITH CHIMPANZEES AND BONOBO

AND SHARE 99%



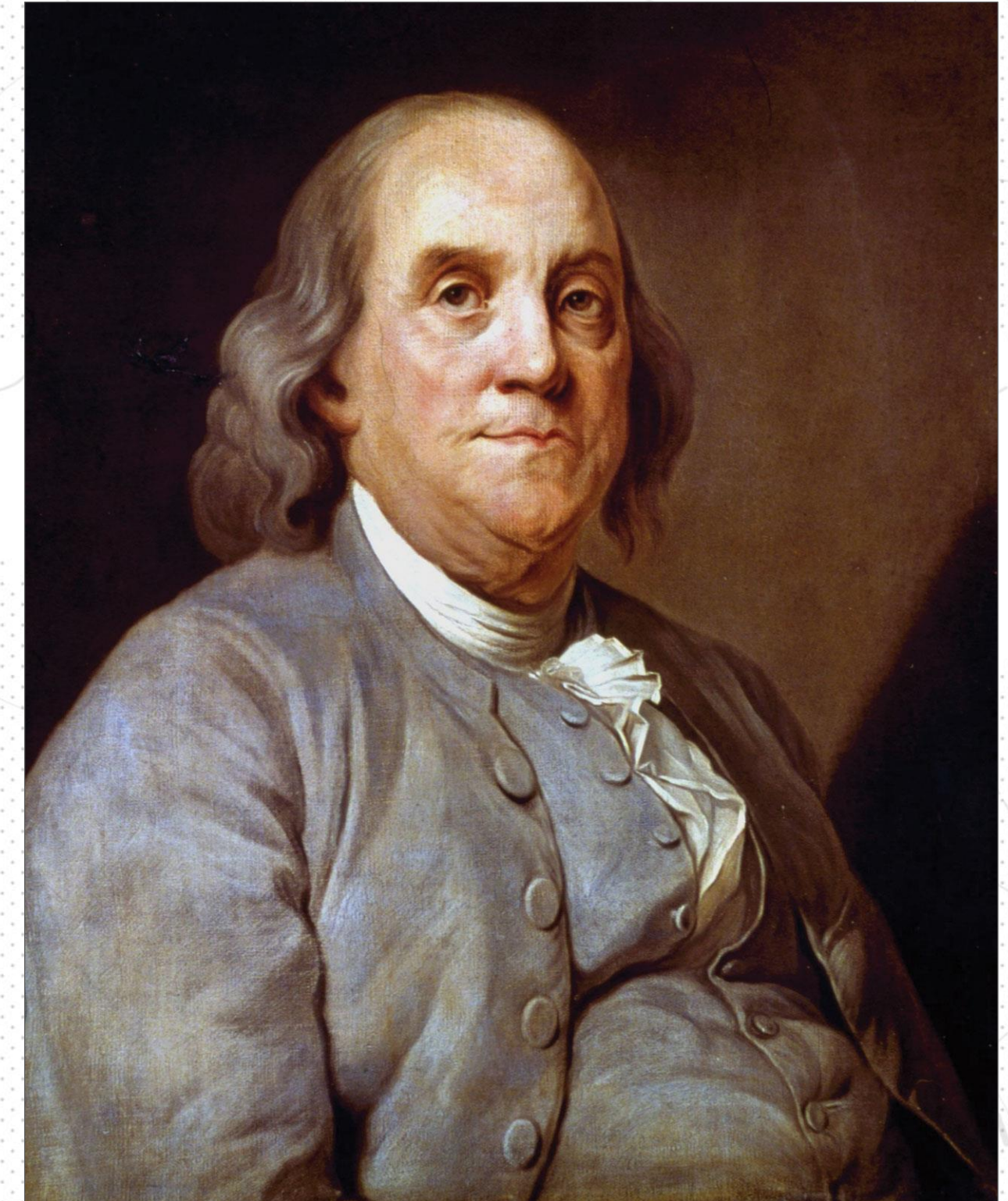
# CHANGING VIEWS OF LIFE ON EARTH



WE AREN'T AS SPECIAL AS WE MIGHT THINK  
MANY ANIMALS FASHION TOOLS, COMMUNICATE VIA COMPLEX  
LANGUAGES, AND SHOW EVIDENCE OF RICH INNER LIVES

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# THE ONLY ETHICAL SPECIES



WITH KNOWLEDGE COMES POWER & RESPONSIBILITY

MORALITY IS OUR UNIQUE GIFT—WITH IT COMES BURDEN OF ETHICAL DILEMMAS AND THE  
RESPONSIBILITY TO GRAPPLE WITH THEM



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# RAISING ANIMALS ETHICALLY



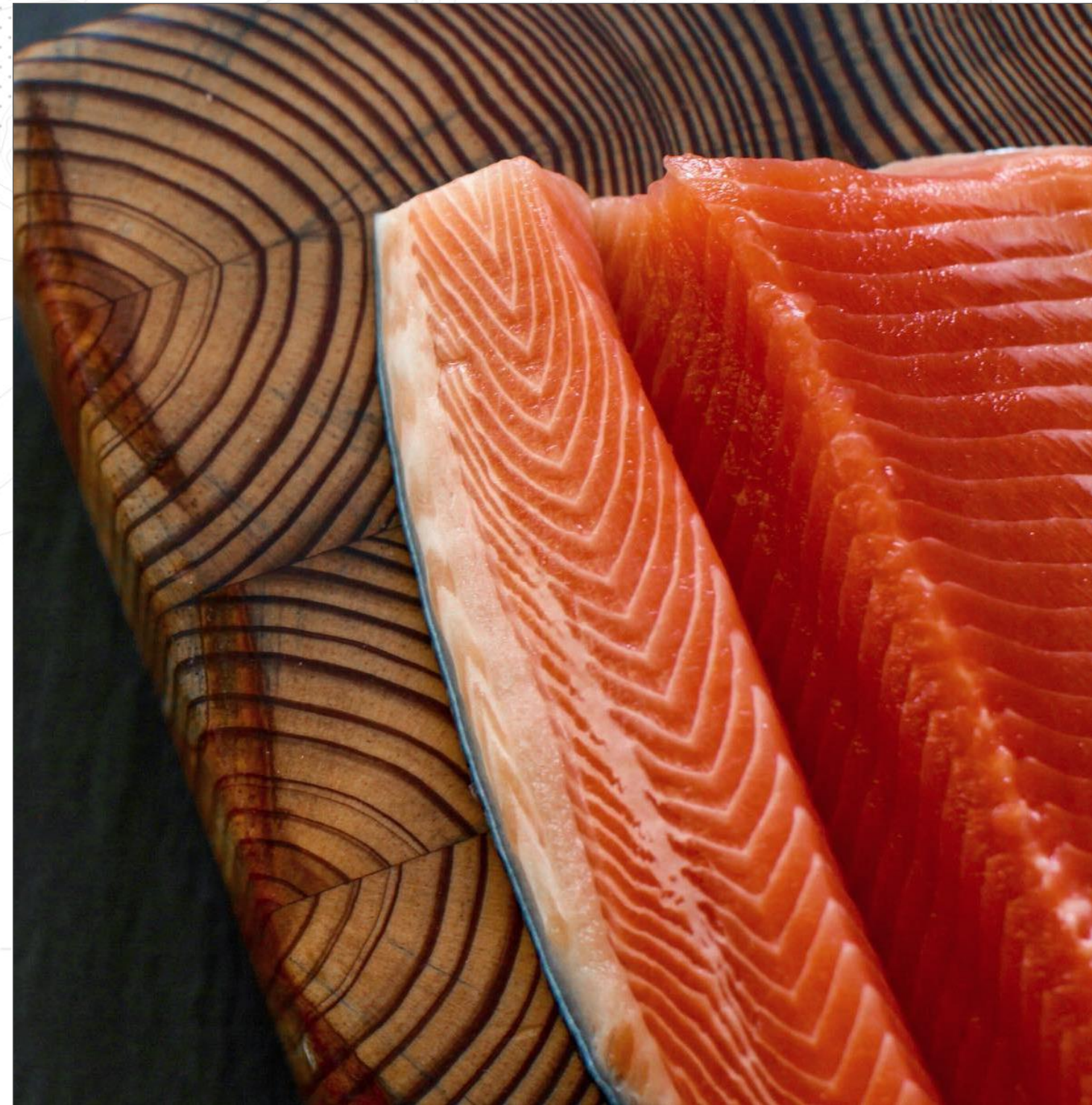
FARMED ANIMALS DESERVE OUR RESPECT  
IGNORING OR DISMISSING THEIR INTRINSIC VALUE IS NOT THE ANSWER



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# RAISING ANIMALS ETHICALLY



FARMED ANIMALS DESERVE OUR RESPECT  
IGNORING OR DISMISSING THEIR INTRINSIC VALUE IS NOT THE ANSWER



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# GENERAL PRINCIPLES OF WELFARE

## BREEDING

Genetic selection should always take health and welfare into account

## SAFETY

The physical environment should be suited to the animal and minimize the risk of injury and disease

## SPACE

The physical environment should allow for safe, comfortable movement and the expression of normal behavior

## SOCIALIZATION

Groupings of animals should be managed to minimize injury and distress and support positive social behavior

## ENVIRONMENT

Environmental quality should support good animal health and not be aversive to the animals



## OIE GLOBAL ANIMAL WELFARE STRATEGY

# GENERAL PRINCIPLES OF WELFARE

## NUTRITION

Animal should have access to sufficient, suitable feed to support performance and prevent prolonged hunger or malnutrition

## HEALTH

Pathogen exposure should be prevented to the extent possible, and diseased animals should be treated promptly or killed humanely

## PAIN

Where painful procedures cannot be avoided, the resulting pain should be managed to the extent that available methods allow

## HANDLING

Handling should foster a positive relationship between animals and farmers and should not cause injury or avoidable stress

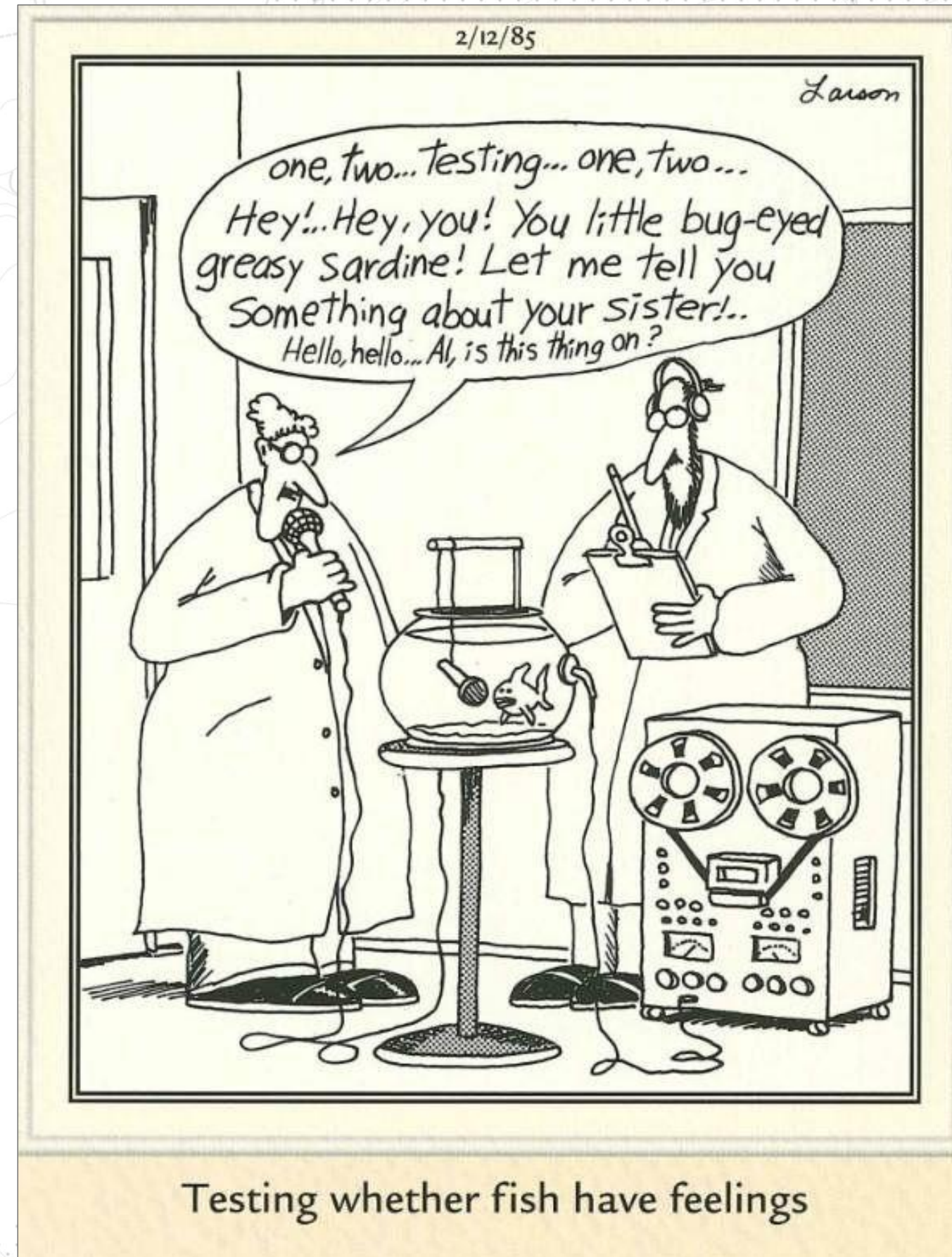
## EXPERIENCE

Farmers should have sufficient knowledge and skill to properly care for the animals in their charge



# OIE GLOBAL ANIMAL WELFARE STRATEGY

# THE QUESTION OF PAIN



THERE IS NO CONSENSUS AS TO WHETHER FISH FEEL PAIN  
BUT COMPREHENSIVE ANIMAL WELFARE IS NOT JUST PAIN AVOIDANCE

# A PRAGMATIC APPROACH

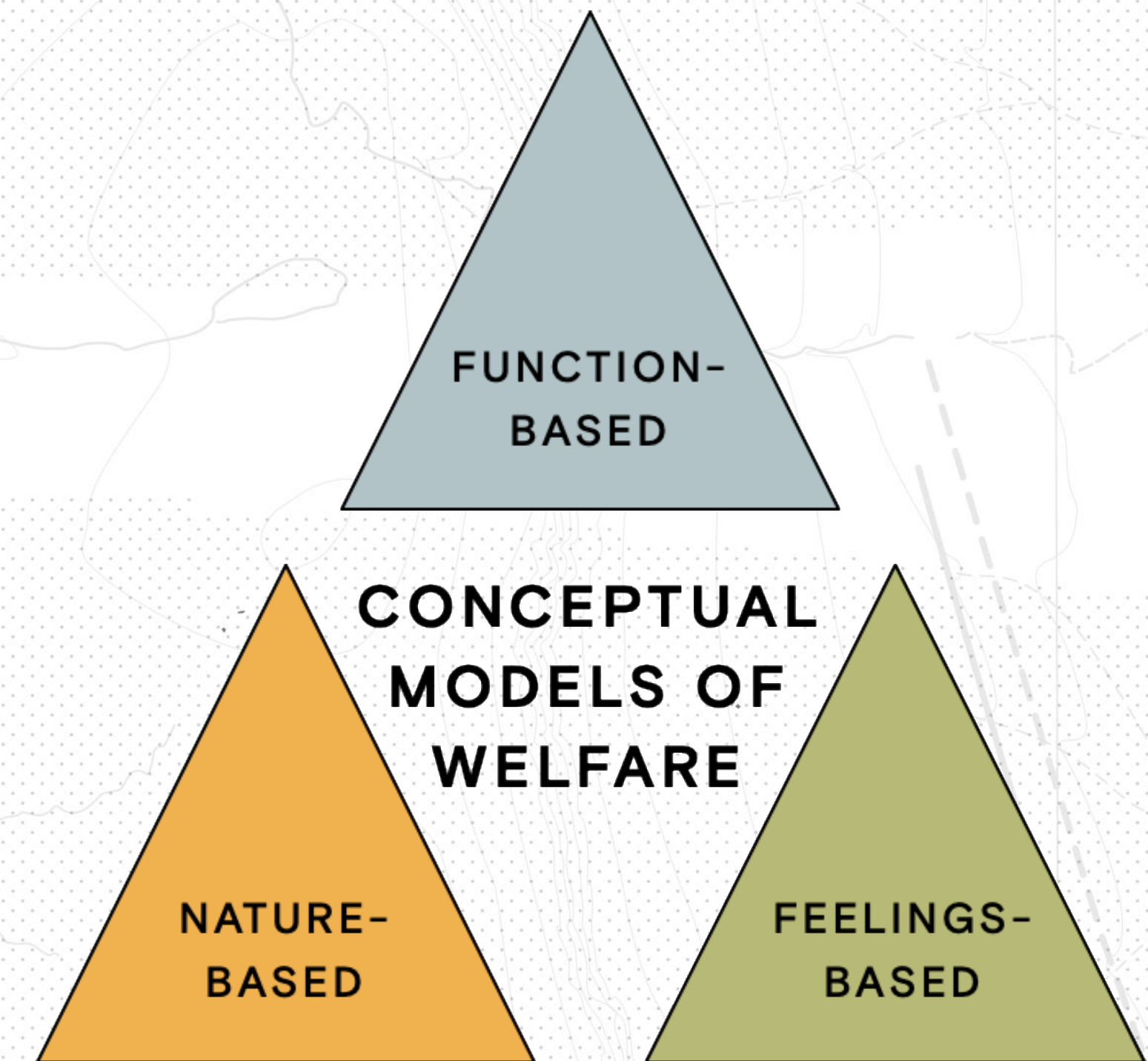
## ANIMALS IN OUR CHARGE ARE OUR RESPONSIBILITY

Animal sentience is not irrelevant, but should not determine whether we consider the well-being of animals in our charge

Regardless of whether fish can feel pain, they can experience stress, be injured, or contract diseases—all of which are contrary to welfare standards, but are within our control

Function-based welfare is based on this pragmatic approach, and considered that an animal's welfare has been satisfied if the animal is in good health, shows normal biological functioning, and good growth

Until we know fish are capable of experiencing negative and positive emotional states—and what factors contribute to these states—the most reasonable strategy is to focus on the farm conditions and husbandry practices that allow animals to reach their biological potential



## FOCUS ON FUNCTION-BASED WELFARE

THE MOST RATIONAL APPROACH IS TO ADDRESS WELFARE IN TERMS OF THE CONDITIONS AND PRACTICES THAT SUPPORT BIOLOGICAL FUNCTION

# WHERE TO BEGIN

## STAFF

Fish production staff know that welfare is an important consideration and are appropriately trained

## CONDITIONS

Welfare considerations specific to the environment and rearing system have been identified

## SYSTEM

The rearing system, including monitoring and alarm systems, is working properly

## FISH

Welfare considerations specific to the fish species have been identified



## WHERE TO BEGIN

### EXPECTATIONS

There is a well-defined production cycle that minimizes handling and establishes benchmarks for success

### OVERSIGHT

There is a system in place to track water quality, feed use, growth, disease and mortality, etc., to inform adaptive farm management

### HARVEST

Harvest and slaughter are optimized with regard to the species and rearing system

### WISE USE

Every effort is made to ensure the best use of farmed fish, including processing wastes



# CONCLUSIONS AND TAKE-AWAYS

## WHEN WE KNOW BETTER, WE DO BETTER

Animal welfare isn't an opposition talking-point—it's our responsibility as ethical beings and good business practice

Animals that are raised with care grow faster and more efficiently, are healthier, and yield a more valuable product

Welfare standards are different for fish than terrestrial animals—what works for terrestrial animals doesn't necessarily work for aquatic animals, but considering welfare is no less important

Make sure your fish culturists know what normal looks like, invest in their ability to recognize and correct problems, and support continued improvement in fish husbandry

Be mindful—have a good reason for everything you do



