Unlocking Precision Farming

www.reeldata.ai

ReelData

Who We Are

ReelData

Founded in 2019 by experts in AI with a passion for land-based aquaculture and sustainability

Highly technical team focused on customer care and useability

Global company serving clients in Europe, North America, & Asia

A.I. solutions built to improve production efficiency

ReelData's Vision

ReelAppetite
The definitive autonomous feeding system

ReelHealth
Comprehensive fish health observation

ReelData AI Suite

ReelBiomass
Weight estimations without the hassle

ReelStress
Track and predict stress events like never before

Fused into One

We Started with Feeding…

More complex than traditional ocean-based but also has more potential

Feeding 24/7 requires 24/7 attention

Impacts:

- Growth

- Fish health

- Taste

- Water Quality

- Process equipment

Maintaining consistency at scale is challenging.

25%

The underfeeding/overfeeding Tradeoff.
- Underfeeding happens 25-50% of the time.
- Up to 30% daily feed spill.

A.I. Feeding helps maintain water quality.
- Consistent feed spill reduces stress on process equipment and helps maintain consistent water quality.
- Increase quality

Appetite is a leading predictor of stress.
- Rapid changes in appetite are detected by A.I.

Experimentation.
- A.I. is used to test feed strategy and efficacy.
- A.I has been used to help determine feed breakage.

Developed in partnership with several of the world's largest ongrowing land-based farm to enable optimized feeding at scale.

Eliminate
Underfeeding

100%

Reduce
spill up to

2-20×

Increase
consumption up to

20%

- Dynamic feed spill.
- This case, up to 15x higher than optimum.

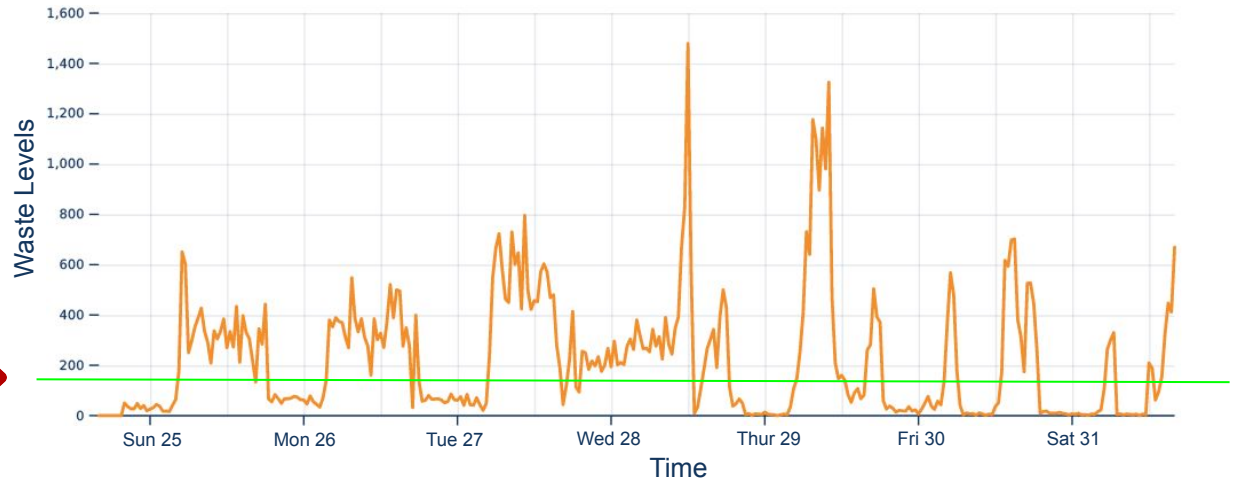**Without A.I. Feeding (This is Pellet Counting)**

—— Waste Levels
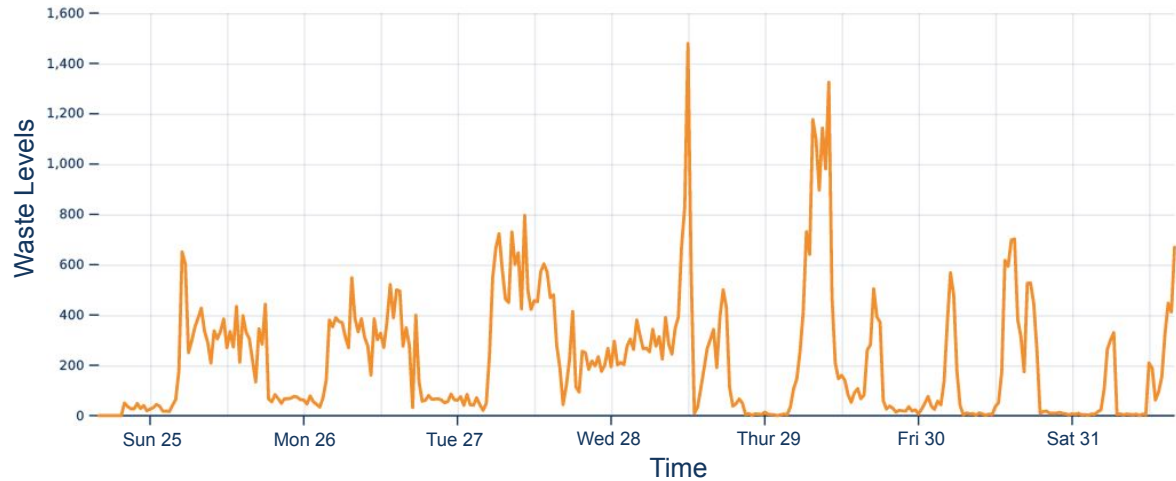
- Green line is optimum.
- Everything over green line is excess feed spill.
- Everything under green line is hunger.

Without A.I. Feeding (This is Pellet Detection)

—— Waste Levels

- Highlighted area is where ReelData operates.

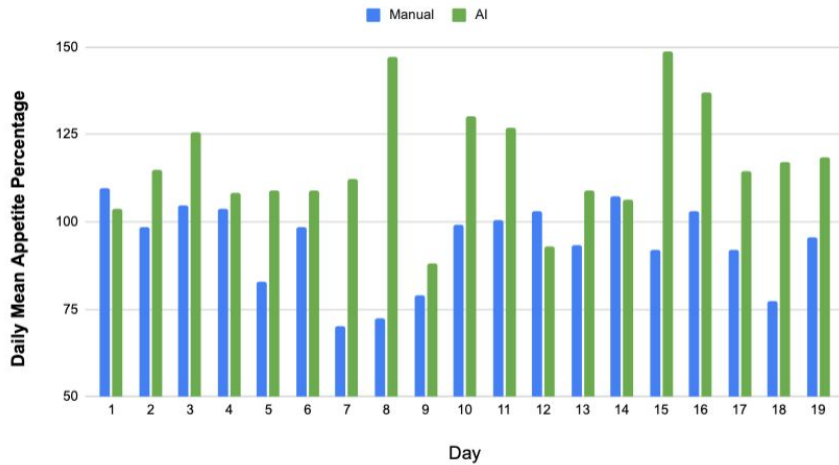**Without A.I. Feeding (This is Pellet Detection)**

—— Waste Levels
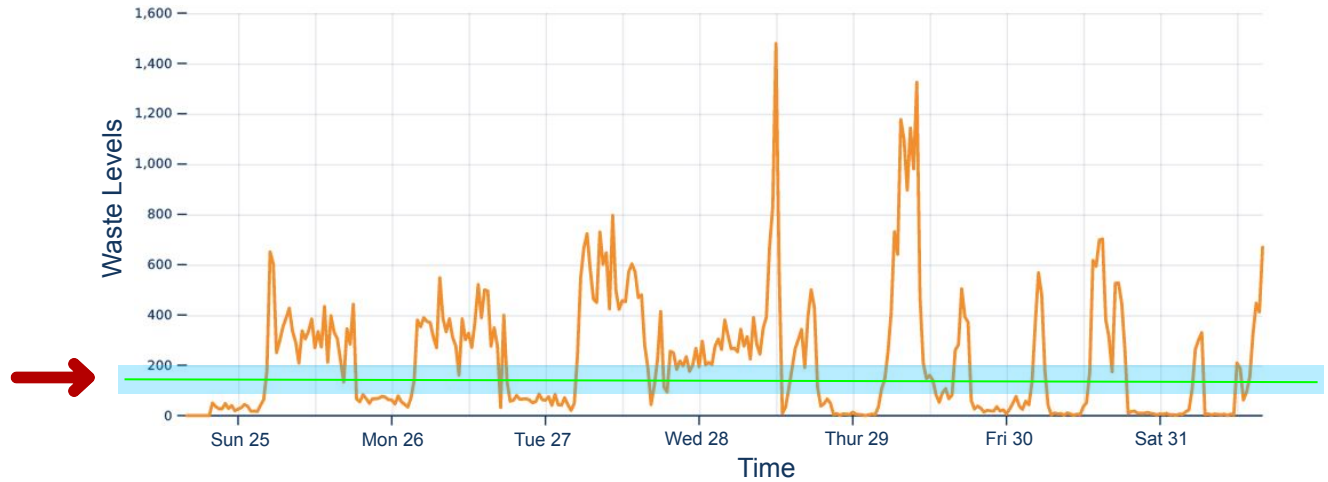
1. Farmers select optimal spill rate at outlet pipe.
2. ReelData adjusts feed rate, which is highly dynamic.
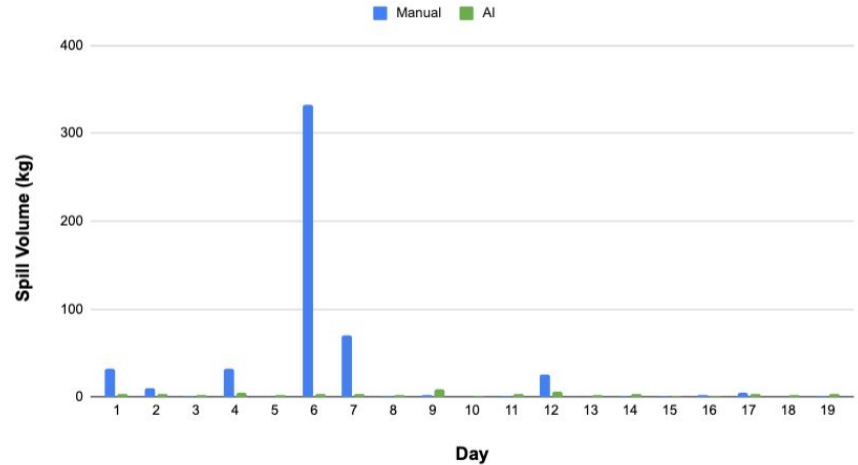3. Spill rate remains constant and low.

A.I. Controlled Feeding (This is ReelData)

—— Waste Levels   —— Appetite

AI Appetite vs. Manual Decision
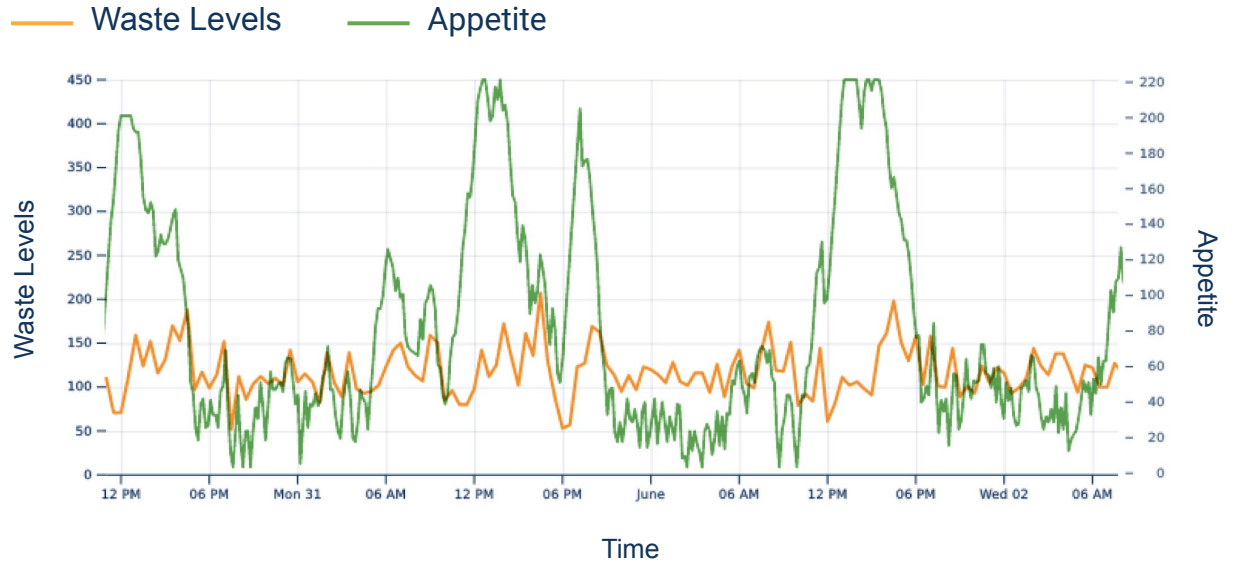
AI Appetite vs. Manual Decision

AI Fed 22% More:
Increasing growth, decreasing ongrowing periods

AI Spills 80% Less:
Reducing FCR and system stress while improving water quality

ReelAppetite

1. A drop in feed spill...
2. Maps to an increase of feed rate into a tank.

A.I. Controlled Feeding - This is ReelData

Waste Levels ——— Appetite ———
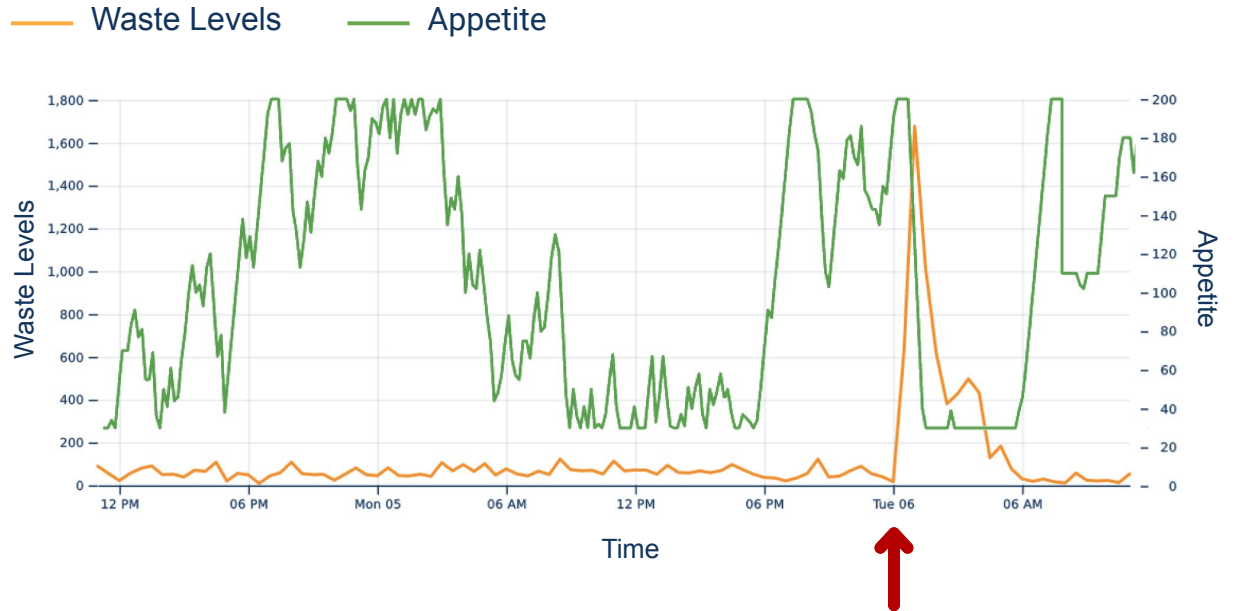

Time
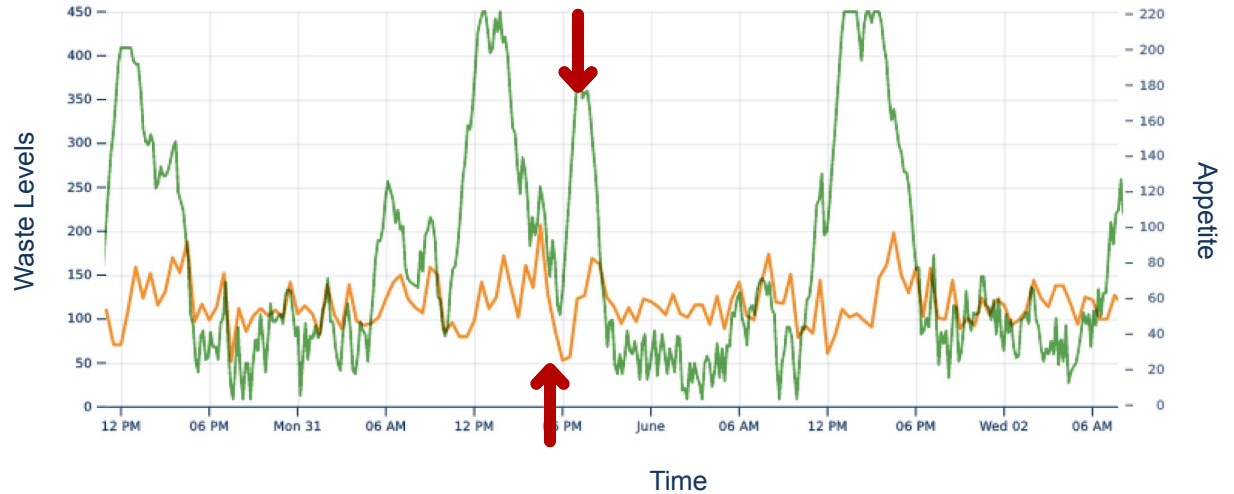
1. Fish stopped eating, showing excess spill at stress event.
2. A.I. took action and reduced feed rate.

A.I. Controlled Feeding - This is ReelData

—— Waste Levels   —— Appetite

ReelBiomass

ReelData

Biomass monitoring on land
is more complex than traditional ocean-based

- **Sampling requires starvation**

- **Cortisol flows through other tanks on same system**

- **Fewer fish in tanks than net-pens means more time sampling per unit of production**

- **Almost non-existent assistive technology for land-based due to tank dynamics (density, lighting, etc.)**

Maintaining consistency at scale is challenging.

Farmers Starve Fish

Typically starve fish for up to up to 24 hours per sampling.

Operational consistency

Bring consistency to biomass sampling for sales teams and operations. No more surprises

AI Biomass helps maintain water quality

Stress-free samples keep systems stable, no feces or cortisol increases

Focus resources

Automated sampling allows teams to focus on other tasks

Developed in partnership with land-based farms in Canada, Denmark, Norway and USA.
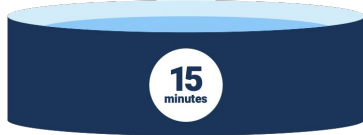
Reduce sampling effort
1 person, 15 minutes per tank

Zero fish stress
Keep performance to the absolute maximum

Eliminate starvation
Increase growth by up to 3.3%

ReelBiomass

Annual Net Value: $325,000*

Per steady state 1000 MT farm
*Not including additional value propositions such as **increased sales metrics**, **performance, and reduced production risks.***

More Consistent Measurements

- Larger sample sizes

- AI "fishial" recognition ensures unique measurements

- Allows for consistent measurements with low variance between sampling

- Easy to see distribution, total standing biomass and average fish weight.

COMPLETED ON **May 29, 2023 11:26**

WEIGHT (KG)

Measurement duration	about 8 hours
Unique fish estimates	700 / 700
Fish in tank ⓘ	10,510
Total biomass	9,050 kg
Average fish weight	0.861 kg
Smallest fish weight	0.299 kg
Largest fish weight	2.043 kg
Median fish weight	0.827 kg

COMPLETED ON **May 25, 2023 21:13**

WEIGHT (KG)

Measurement duration	about 8 hours
Unique fish estimates	700 / 700
Fish in tank ⓘ	10,510
Total biomass	8,773 kg
Average fish weight	0.835 kg
Smallest fish weight	0.255 kg
Largest fish weight	1.898 kg
Median fish weight	0.808 kg

ReelBiomass

Live Video Feed

User adjustable camera settings allows for imaging to change depending on water quality and dynamic in-tank lighting

Tank Name	Completed On	Unique Fish Estimates	Fish in Tank
GT14	-	107 / 700	10,510

Biomass Camera
May 25 2023, 13:46:21

Individual Fish "Vet-view"

- See each individual measurement
- Annotate fish for health metrics.

Farm-wide View

- Easy to see distribution
- Total standing biomass
- Average fish weight
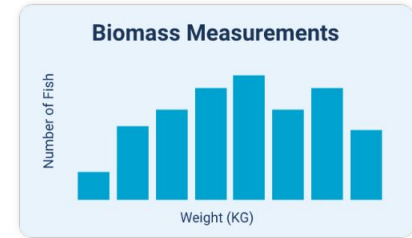
ReelBiomass All Tanks
Recent Tank Biomass Measurements

SORT BY
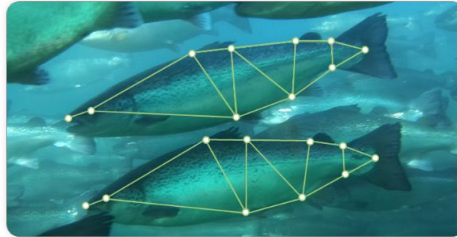Tank Name

Search tank

Tank Name	Completed On	Unique Fish Estimates	Fish in Tank	Total Biomass	Average Fish Weight	Measurement	Camera Status
GT16	-	—	—	—	—		
GT15	-	—	—	—	—		
GT14	-	8 / 700	10,510	7,484 kg	0.712 kg		
GT13	-	—	—	—	—		
GT12	May 25, 2023 07:42	268 / 700	18,300	13,776 kg	0.753 kg		
1	Jan 03, 2023 09:28	421 / 1,000	12,149	16,331 kg	1.344 kg		

1-15 of 15

How it's Implemented
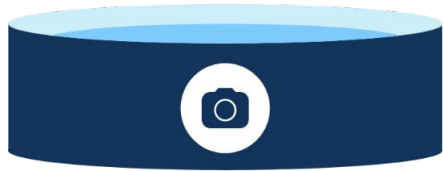
1.

Place camera in tank, connect to tank-side control box.

2.

Start measurement on ReelBiomass web user interface

3.

AI weighs fish and reliably estimates population biomass

How does it work?

ReelData

Appetite, Biomass, Health, and Stress all work the same way

Collection

- Sensor data
- Visual information
- IoT
- Farmer knowledge

Analysis

- Classical algorithms
- Artificial Intelligence
- Fusion with other information
- Anomaly detection
- Now vs. past

Action

- Automated behaviours
- Advanced alerting
- Input into other systems
- Learn what works

High quantities of data, difficulties of transport, and heavy computation requirements

All enabled by ever-evolving artificial intelligence techniques

ReelData

Stress free, Accurate, Automated

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