



PRECISION AQUACULTURE

Fine-tuning practices to improve performance

Ridley Australian Prawn Farmers Association Symposium 2019



PRECISION AGRICULTURE

What about Aquaculture?

Precision Agriculture: is an approach to farm management that uses information technology to ensure that

- I) the crop receives exactly what it needs for optimum health and productivity and,
- II) to develop a decision support system for optimizing returns (profit) while managing resources (costs).



Increased Understanding = Reduced
Business Risk = Predictable Profitability

PRECISION FOCUSED PRACTICES

What is driving the adoption?



Mick Keogh
Executive Director
Australian Farm Institute

“As digital technology permeates the everyday lives of all Australians, the technological transformation of agribusinesses is rapidly escalating.

Modelling projects that full unconstrained implementation of digital driven technologies within Australian agriculture would deliver a 25% boost to the value of this industry

A \$20.3 billion increase with all sectors benefitting”

Areas providing the greatest cross-sectoral gains identified as;

1. \$7.4 billion. Labour savings from automation.
2. \$2.9 billion. Genetic Gains through objective data.
3. \$2.3 billion. Closer tailoring of inputs to needs.
4. \$1 billion. Enhancements to biosecurity and market access.



Farm Policy Journal

<http://www.farminstitute.org.au/>



EVIDENCE BASED REASONING FOR ADOPTION



Precision planting / accurate PL stocking?



Drip irrigation / Precision feeding



greenhouses / nursery hatcheries



Color sorting & grading /



Interpret



IMAGINE THE POSSIBILITIES

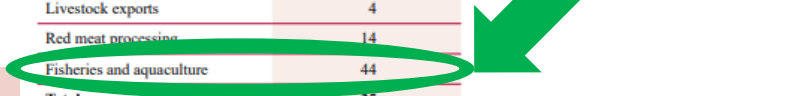
PRECISION AND AQUACULTURE?

What is in it for me through adopting precision focused practices?

Table 1: Summary of potential unconstrained impact of digital agriculture to gross value of production (GVP).

Sector	Potential estimated benefit to the economy
	GVP ^a Increase (%)
Rice	30
Grains ^b	51
Cotton	28
Sugar	23
Horticulture ^c	40
Beef	16
Sheep meat	17
Wool	18
Pork	5
Dairy	15
Eggs	25
Chicken meat	24
Wine	12
Forest and wood products	37
Livestock exports	4
Red meat processing	14
Fisheries and aquaculture	44
Total	25

44% increase in actual production output projected for Fisheries and Aquaculture.



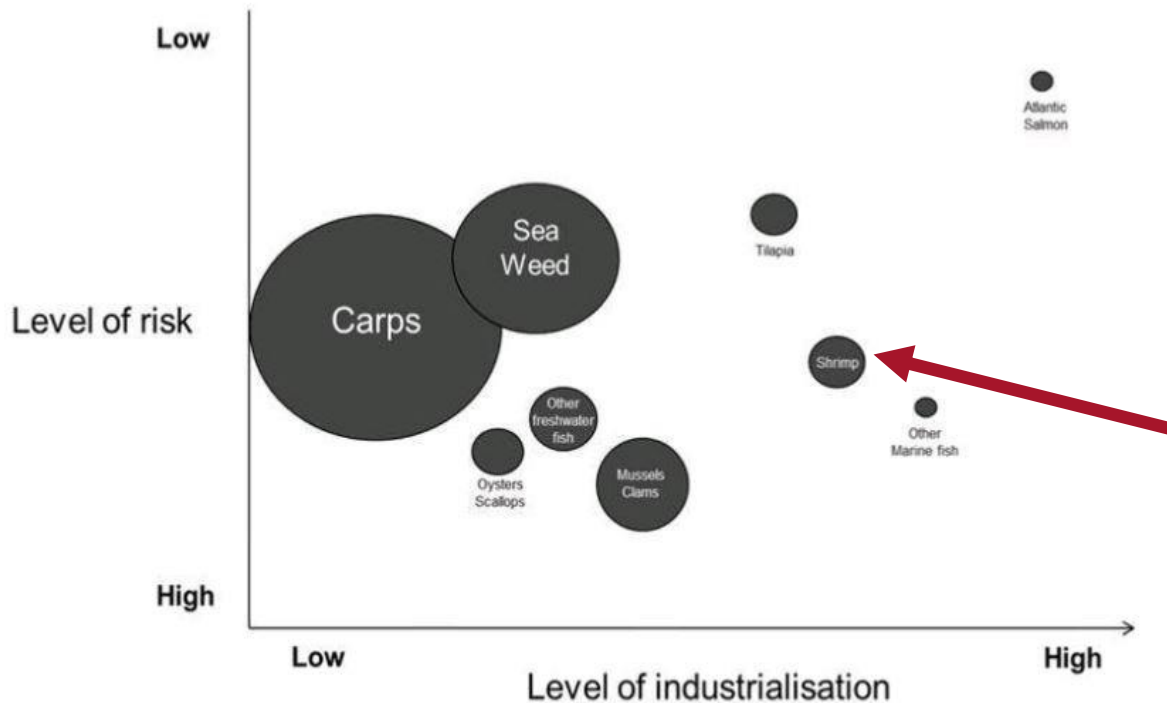
^a GVP measures the actual production output of an establishment or sector.

^b Including oilseeds and pulses.

^c Leafy greens, brassicas, and carrots only.



Increasing Industrialisation within aquaculture is driving a precision based approach.



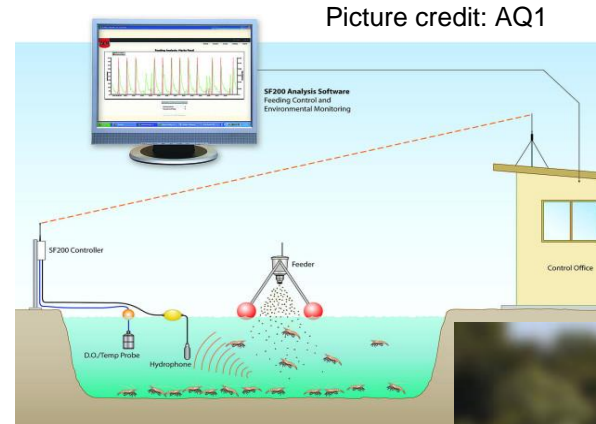
- Atlantic Salmon has the highest level of industrialisation and the lowest level of risk compared to other aquaculture species. The size of the circles indicates volume harvested.
- Atlantic salmon is relatively small in harvest volume compared to other species, it is a very visible product in many markets due to the high level of industrialisation.
- What is the opportunity for farmed prawn?



PRECISION AQUA TOOLS- TODAY

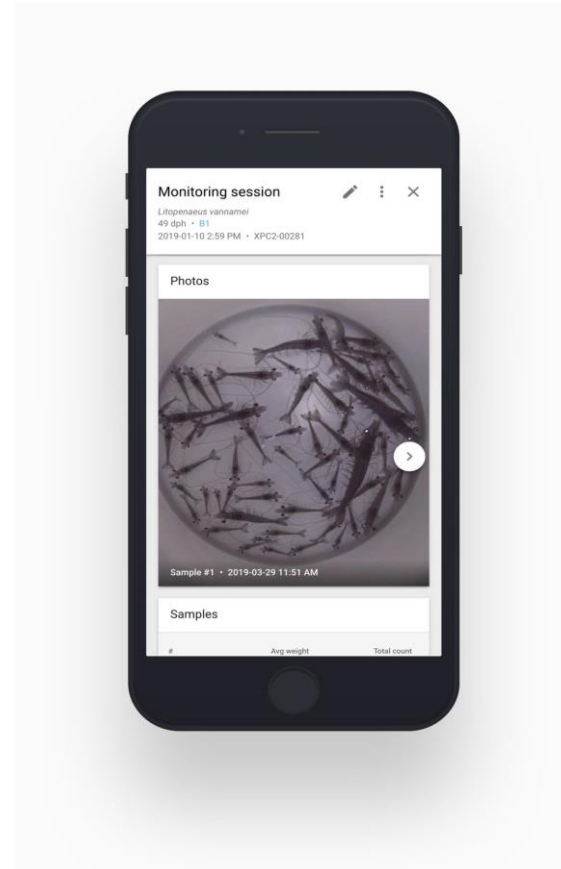


Precision Nutrition / Growth Modeling / Smart Feeding



PRECISION AQUA TOOLS- TODAY

Imaging recognition software / optical sorting



PRECISION AQUA TOOLS- TODAY

Remote monitoring / GPS mapping / Visual interface analytics/ Aq aas

AQ1 Analytics – Global Snapshots

Overview of m parameters metrics.

an set olds to identify and set requiring ement action

Weather Foreca

Google Map functionality with pond objects

Wireless Enviro Station monitori water quality in canals

Legend: Dissolved Oxygen (mg/L) Low, Warning, Off, No Data

Map: Thu 20 25.0°C



Reservoir

STOP

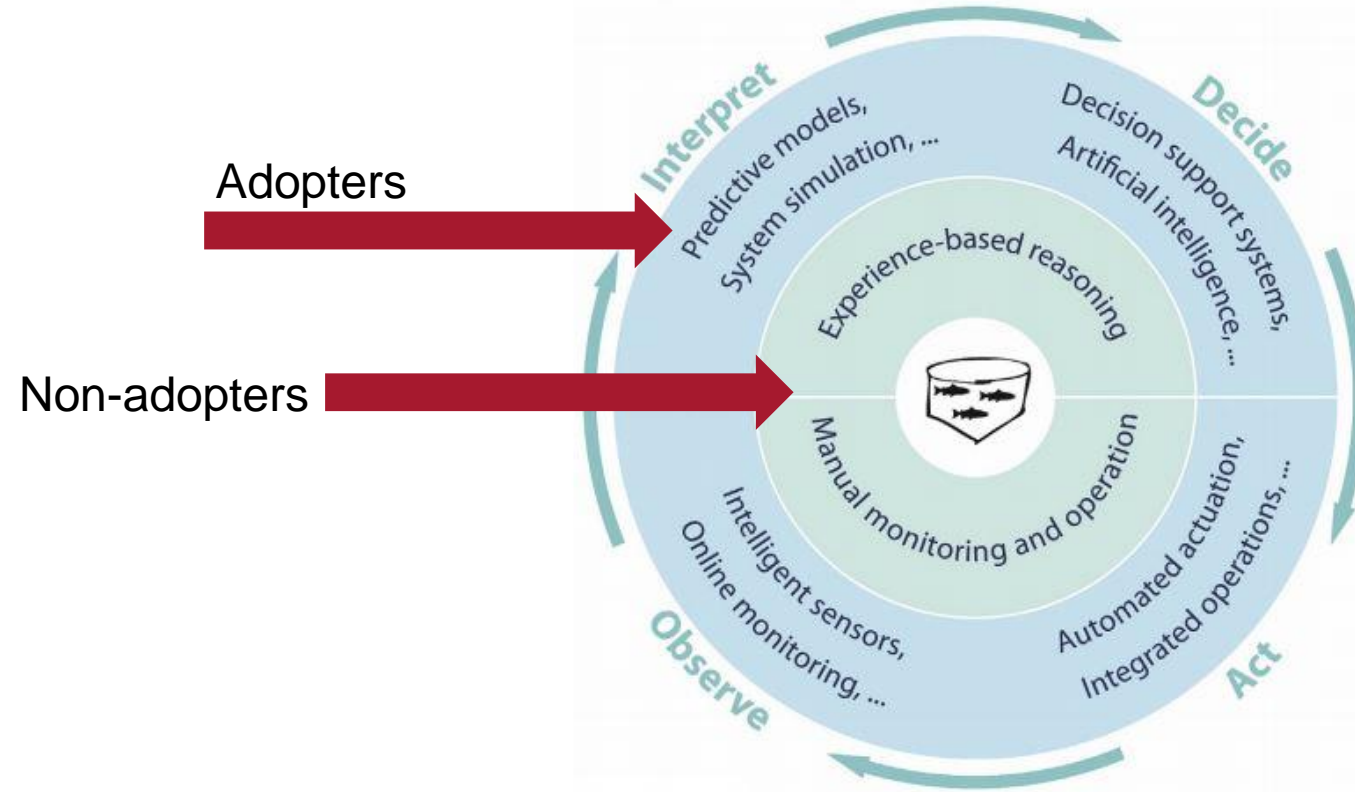
20.21 Temp °C	1.03 Depth m
7.04 RDO mg/L	93.1 RDO %Sat %Sat
148.9 ORP mV	9.36 pH pH
104.2 Act Cond µS/cm	849.6 Baro mBar
0.1 Salinity µm	0 TDS µg/L

SmartROLL™ MP



WHAT ARE THE PRINCIPLES BEHIND PRECISION?

Observe, Interpret, Decide and Act



THE FUTURE IS NOW

THANK YOU

SECTION DIVIDER OPTION 2

SECTION DIVIDER OPTION 3

SECTION DIVIDER OPTION 4

SECTION DIVIDER OPTION 5

SECTION DIVIDER OPTION 6

SECTION DIVIDER OPTION 7

SECTION DIVIDER OPTION 8

SECTION DIVIDER OPTION 10

SLIDE TITLE



Slide subheading

Level 1 – subtitle

Level 2 – body text

- Level 3 – Bullet point 1
 - Level 4 – Bullet point 2

SLIDE TITLE



Slide subheading

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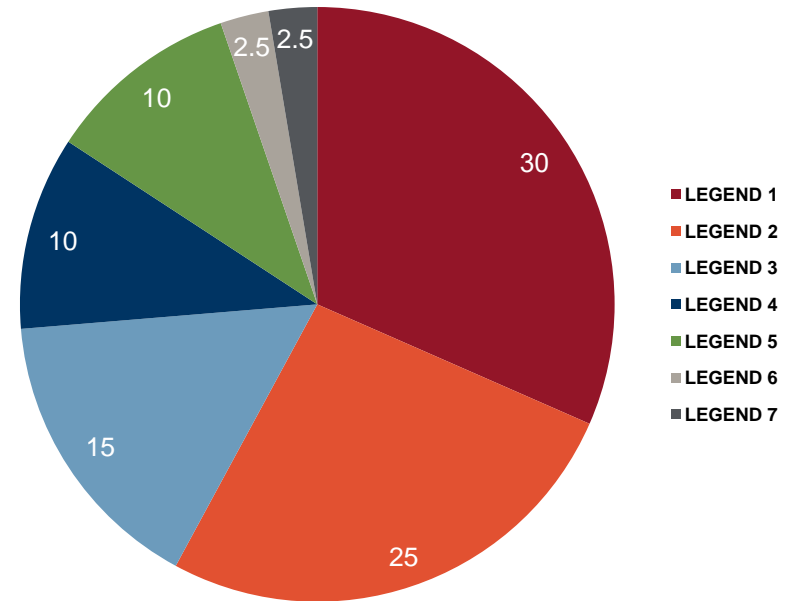
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CHART TITLE



Slide subheading

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- Level 3 – Bullet point 1
 - Level 4 – Bullet point 2

MAIN HEADING			
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	Subheading	Subheading	Subheading
200	2000	2000	2000
200	2000	2000	2000
200	2000	2000	2000
200	2000	2000	2000

THANK YOU

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