

Celebrating
20 years of
the Global
Aquaculture
Alliance

GOOL
2017 DUBLIN, IRELAND

Some guys just get better with age

Forum will discuss new organisation

DURING the Seattle show, the World Aquaculture Society is planning a forum to discuss the development of an independent aquaculture industry organisation.

"As the industry continues to grow worldwide," says George Chamberlain, a former president of WAS, "it is being confronted with an increasing number of international issues of a political or business nature, which are beyond the educational and scientific mission of our Society.

"Many of these issues transcend national borders and might best be addressed through a coordinated international effort."

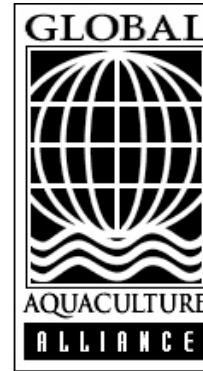
This indicates a need for an organisation, independent of WAS, to address the global needs of the industry.

Representatives of many leading aquaculture organisations around the world are being invited to participate in this forum.

Anyone interested in attending should contact George Chamberlain at World Aquaculture '97. Fax: +1 (206) 483 6319.



George Chamberlain. Wide international issues.



global aquaculture
the alliance

**Global
Aquaculture
Alliance™**



Wonderful Country,
Wonderful City...Thank You! |



**Just two Good Irish
Boys and Their
Friend from Seattle**

**“Don’t worry, we only
drink water.”**

Last year...

GOAL



2016 Guangzhou China

HEALTHY FISH | HEALTHY PEOPLE | HEALTHY PLANET



Wally Stevens
Global Aquaculture Alliance

And this year...

The Next 20:

- 🌐 What will we make of our next 20 years?
- 🌐 What is our “fire in the head”—our vision—for The Next 20?

‘Great Expectations’ from Aquaculture

Predictable supply

Predictable cost of products

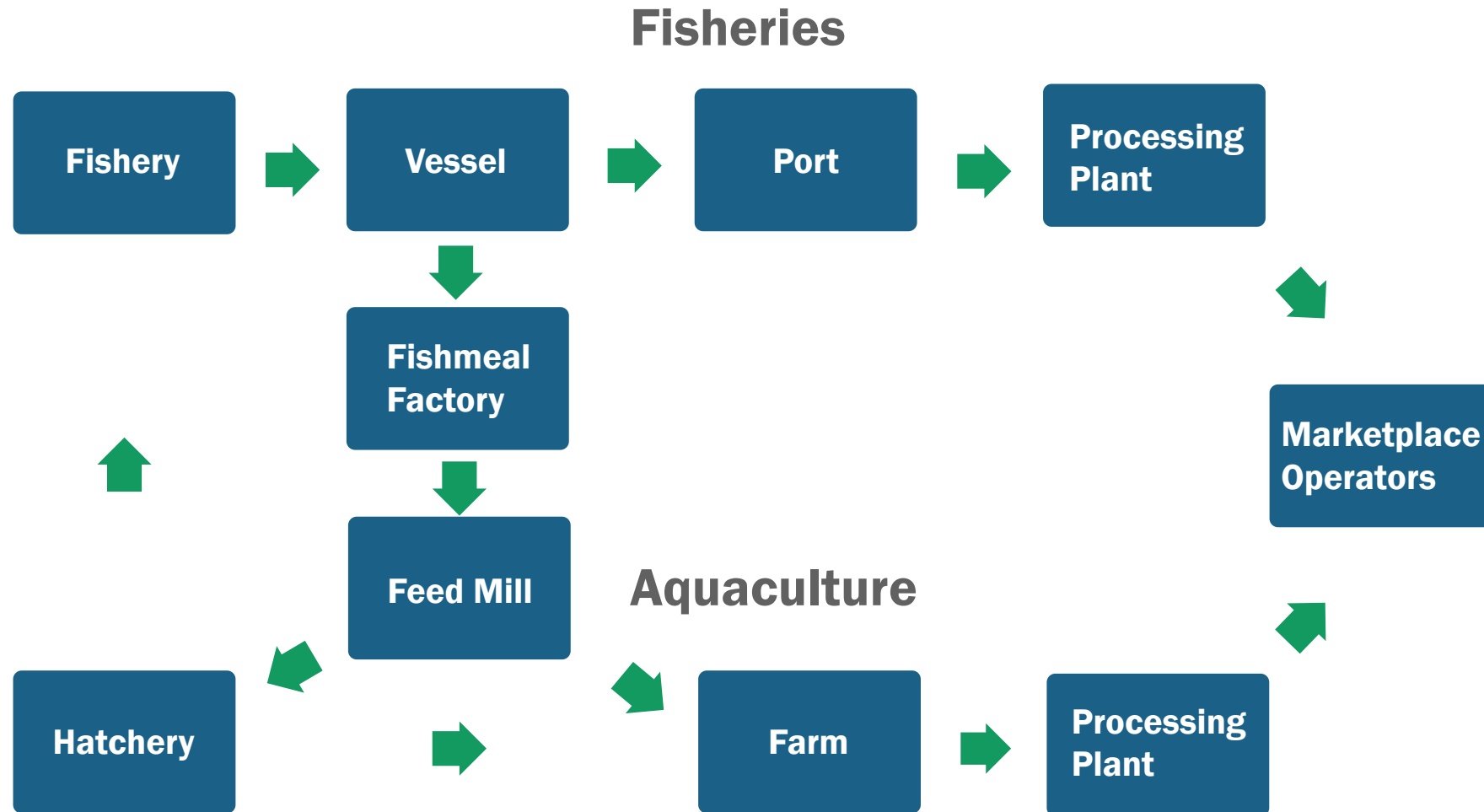
Respect for the environment

Respect for workers

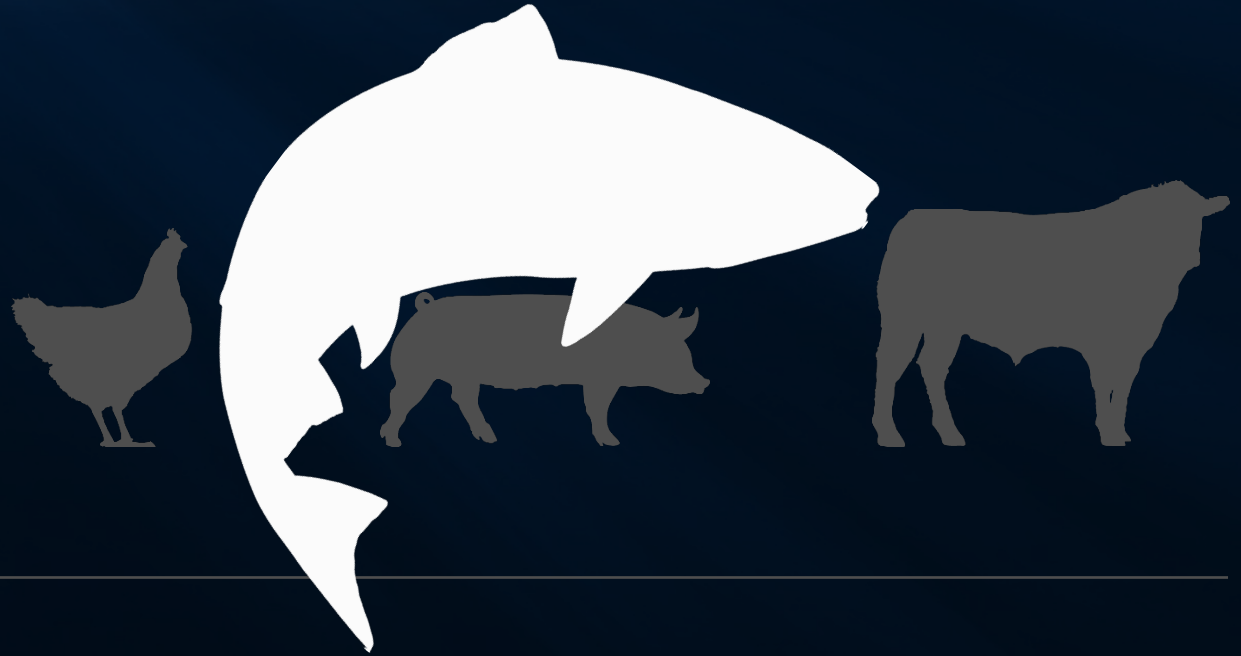
Proper care of animals

Safe products, safe food

Collective Effort: It Takes All of Us



Aquaculture production is highly resource efficient



Protein retention	21%	31%	18%	15%
Energy Retention	10%	23%	14%	27%
Edible Yield	46%	68%	52%	41%
Feed Conversion Ratio (FCR)	2.2	1.1	3.0	4-10
Edible Meat pr 100 kg fed	21 kg	61 kg	17 kg	4-10 kg

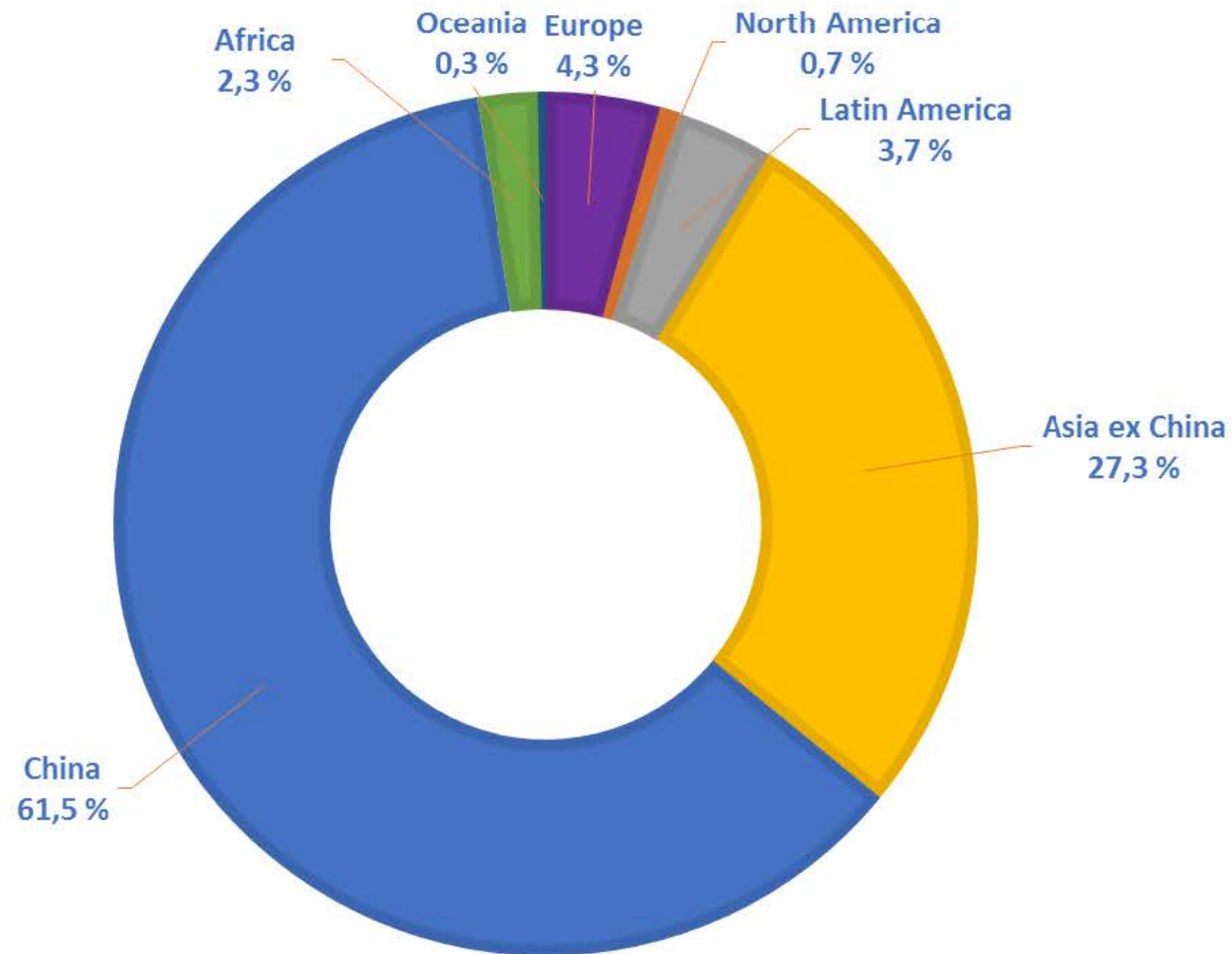


So, we are in the right
business!

-- Dr. Lyons

Where are the aquaculture regions?

88.8% in
Asia/China



Problems Opportunities

Challenges → Opportunities

Pollution
Efficiency
Disease
Safety
Transparency

State of Shrimp Farming

(See George's interview slides)

- Repeated themes: Environmental deterioration, increasing bacterial and parasitic diseases in major production areas of China and Southeast Asia – EMS, WFD and EHP.
- Shrimp farming growth slow overall: Continued expansion in Ecuador and India, but tempered by contraction in China.
- Disruptive technologies necessary to overcome current bottlenecks.

State of Shrimp Farming

(cont.)

- Must breed shrimp to be more resilient to challenging environments.
- Intensifying production in more controlled environments.
- New reality in China: “The era of easy shrimp farming is gone forever.”
- Collaborative approach helps. *If we want to go far, we must go together.*

Shrimp Producer Survey: Issues & Challenges

Asia

1. Disease
2. Seed stock quality and availability
3. Access to disease-free broodstock

Latin America

1. Production costs: feed/fishmeal
2. Disease
3. Market prices



www.alamy.com - 467287

Global Shrimp Production Expectations

- 2016-17: + 2%
- 2017-18: + 5%
- 2016-19: + 4.8% per year

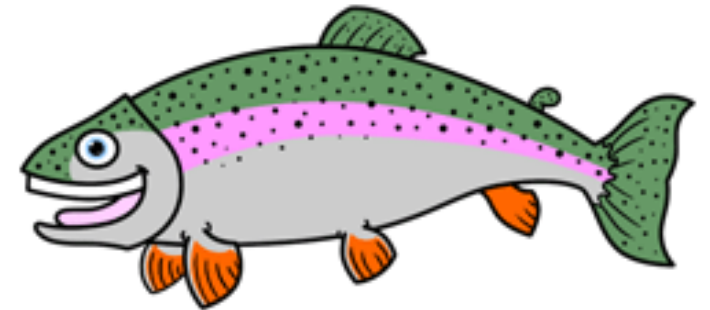
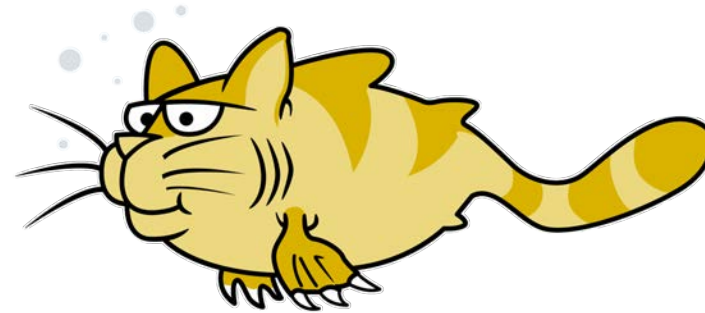
2018 Expectations:

- Generally expect higher feed prices
- Stronger shrimp markets (slightly more positive than last year)
- Better global economic conditions (also slightly more positive)



Finfish: Did They Double in a Decade? 2007-2017

Catfishes	+ 235%
Tilapia	+ 149%
Barramundi	+ 147%
Turbot	+ 94%
Carp	+ 74%
Bluefin Tuna	+ 69%
Atlantic Salmon	+ 62%
Small Trout	+ 55%
Cobia	+ 51%
Pangasius (Vietnam)	+ 46%



Global Economic Growth Forecast: What does this mean for aquaculture?

(IMF JULY 17)	2016	2017f	2018f
World Output	+3.2%	+3.5%	+3.6%
Advanced	+1.7%	+2.0%	+1.9%
US	+1.6%	+2.1%	+2.1%
Euro Zone	+1.8%	+1.9%	+1.7%
Germany	+1.8%	+1.8%	+1.6%
France	+1.2%	+1.5%	+1.7%
UK	+1.8%	+1.7%	+1.5%
Japan	+1.0%	+1.3%	+0.6%
Emerging	+4.3%	+4.6%	+4.8%
China	+6.7%	+6.7%	+6.4%
India	+7.1%	+7.2%	+7.7%

And the Effect of Projected Population Growth?

	2015	2030	2050	% 2015-2050
World	7,349	8,501	9,725	+32.3%
Africa	1,186	1,679	2,478	+109%
Asia	4,393	4,923	5,267	+19.9%
Europe	738	734	707	-4.2%
Latin Am. & Caribbean	634	721	784	+23.7%
North America	358	396	433	+20.9%
Oceania	39	47	57	+46.2%



Global Food Production: Our chance to shine

- Population projections to 2050 → 60% increase in agricultural consumption
- Challenges: Feed the world and nurture the planet
- Sustainability the big theme
- Weather certain to disrupt production
- Food security will become more important

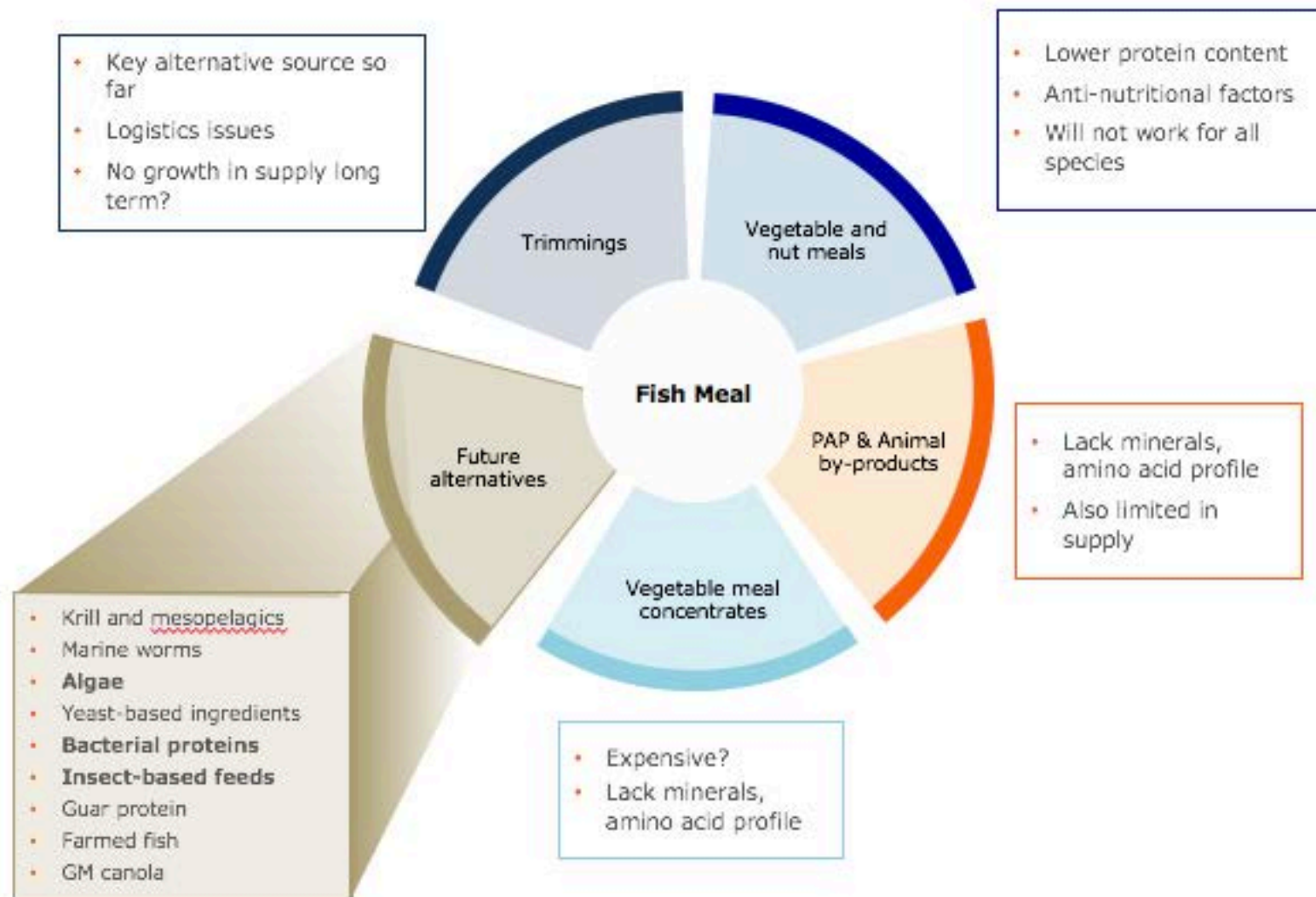
If farmed fish have a much better FCR then terrestrial animals, why are animal proteins cheaper per kilogram of meat?

							
FCR	1/8	1/5	1/4	1/1.8	1/1.4	1/1.3	1/1.2

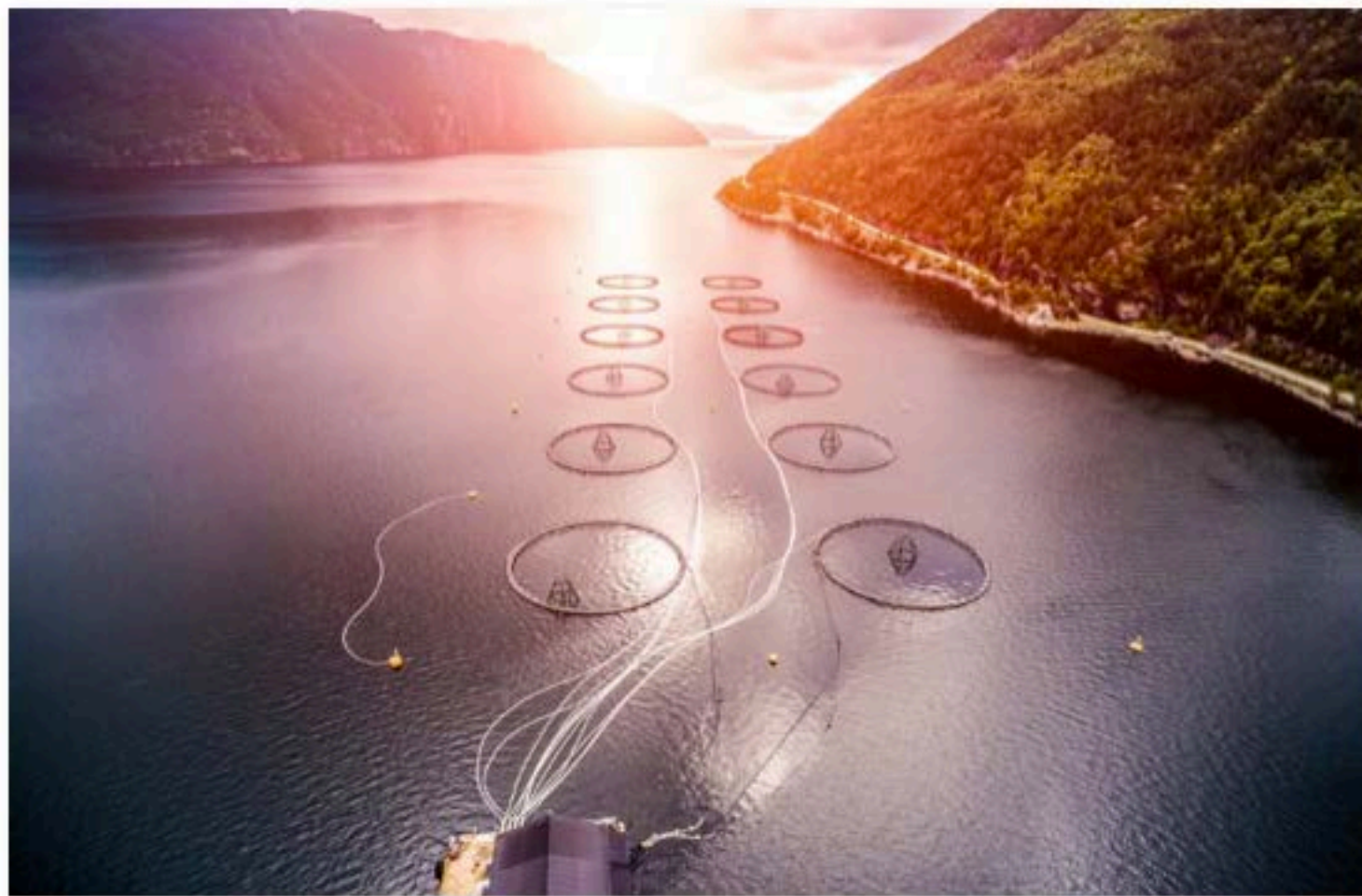
A number of reasons account for the price difference

1. Scale
2. Maturity
3. Logistics / distance to market
4. S/D balance
- 5. Feed price is high**
- 6. High mortality / biological cost**

Due to the scarcity of fishmeal and fish oil, alternatives have attracted attention and investors

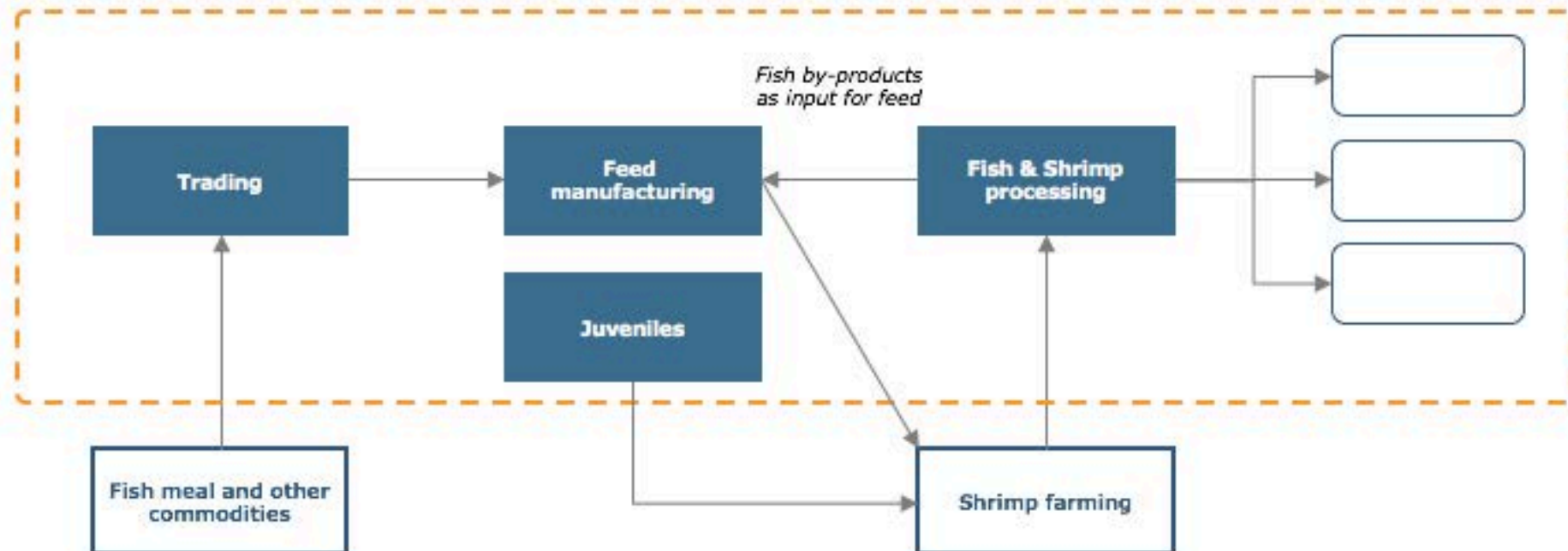


Aquaculture is open to the aquatic environment.....



.....and most aquaculture is performed by smallholders

Typical Shrimp farming business model in Asia



- Vertical integrators: Capital-efficient model, suited to Asia and good for rapid growth
- But farming remains out of the vertical integration, very fragmented and difficult to control

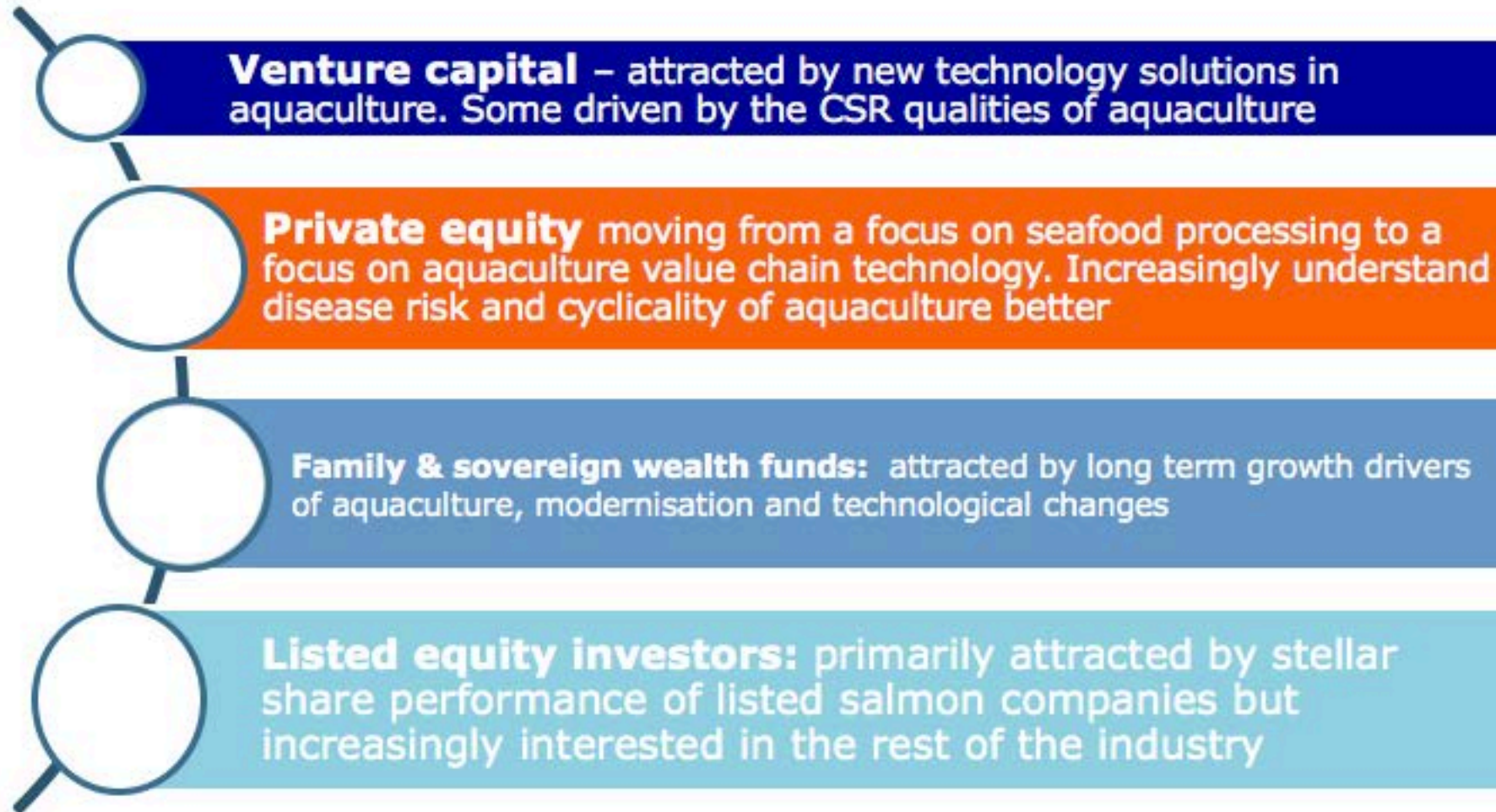
...These and other features means biosecurity is an acute issue in aquaculture

- Farming in open environment
- Small holders
- Volumes growing rapidly mostly combined with increasing farming density
- Over 90% is in a tropical (high biodiversity) climate
- Mostly a developing country industry (grey sector / lack of legislation)
- Aquatic animals are recently domesticated– we do yet know what we lost while breeding for growth



**High likelihood of
disease /
biosecurity issues**

Due to technology and growth investor interest towards aquaculture is improving



**As we observe the 20th
anniversary of the Global
Aquaculture Alliance, we have
much to celebrate.**

GSSI Recognized Schemes



CERTIFIED

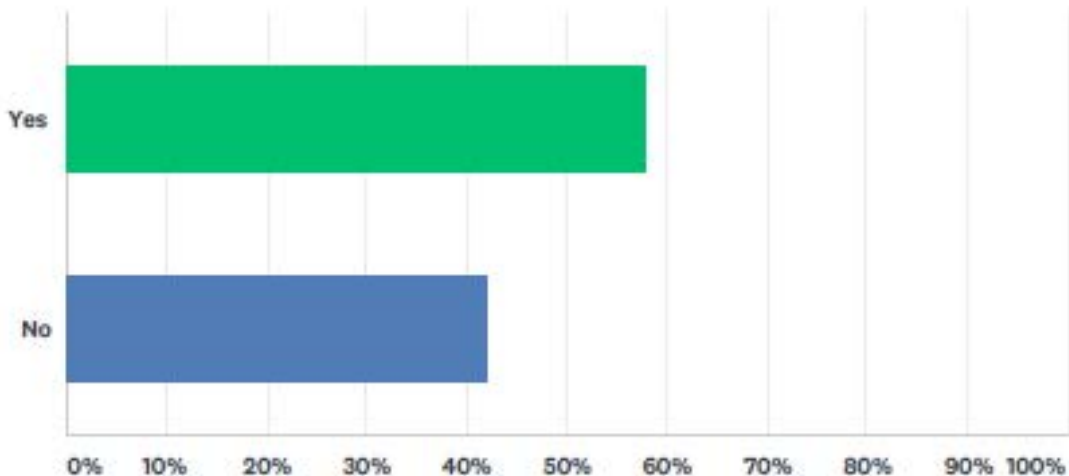


But we cannot rest...



Q10 Are you familiar with this logo?

Answered: 81 Skipped: 37



ANSWER CHOICES	RESPONSES	
Yes	58.02%	47
No	41.98%	34
TOTAL		81

...because open-ended responses showed no awareness of its relation to farmed seafood.

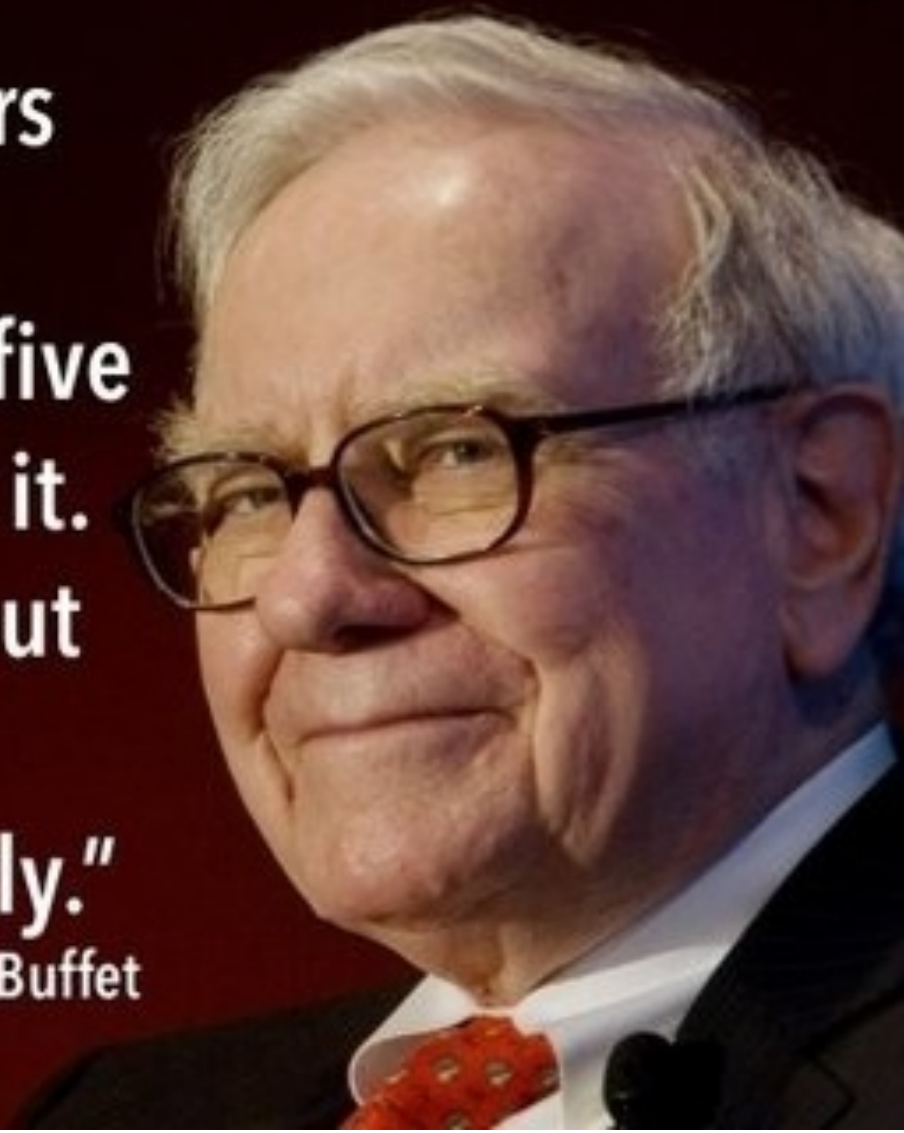


Foodservice Survey Observations from Dr. Griffin

1. Food safety outweighs sustainability in priority.
2. Chefs associate “sustainability” with environmental and ecological responsibility, and traceability.
3. Sustainability deemed “extremely important” by 2/3 of chefs.
4. Impact of eco-labelling on purchasing is mixed. MSC is more widely recognized than BAP. (But few know what they mean.)
5. Chefs indicate they frequently check seafood’s sustainability.
6. Only 1/3 of chefs view farmed seafood positively.
7. Over 80% of chefs check the country of origin of frozen seafood – with strong preference for sources closer to home.

**"It takes 20 years
to build a
reputation and five
minutes to ruin it.
If you think about
that, you'll do
things differently."**

– Warren Buffet



Our 'Great Expectations' for The Next 20?

Predictable supply

Predictable cost of products

Respect for the environment

Respect for workers

Proper care of animals

Safe products, safe food

***If you want to go fast, go alone.
If you want to go far, go together.***

African proverb



Safe travels and see you next year...location TBD!

