



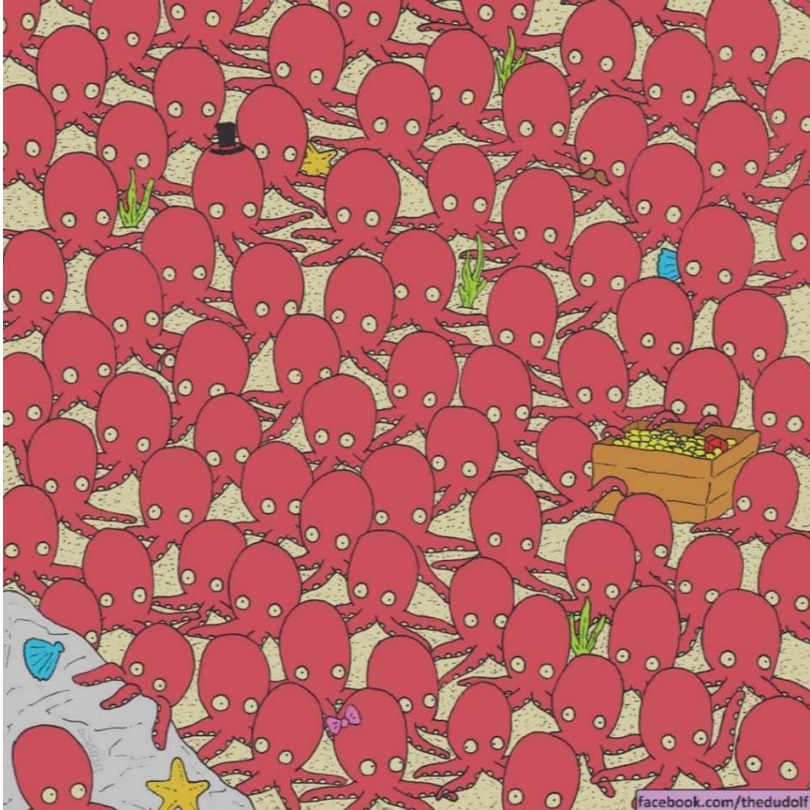
CURRENT OPPORTUNITIES AND CHALLENGES FOR CONSUMER ACCEPTANCE OF AQUACULTURE PRODUCTS

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FIND THE FISH...

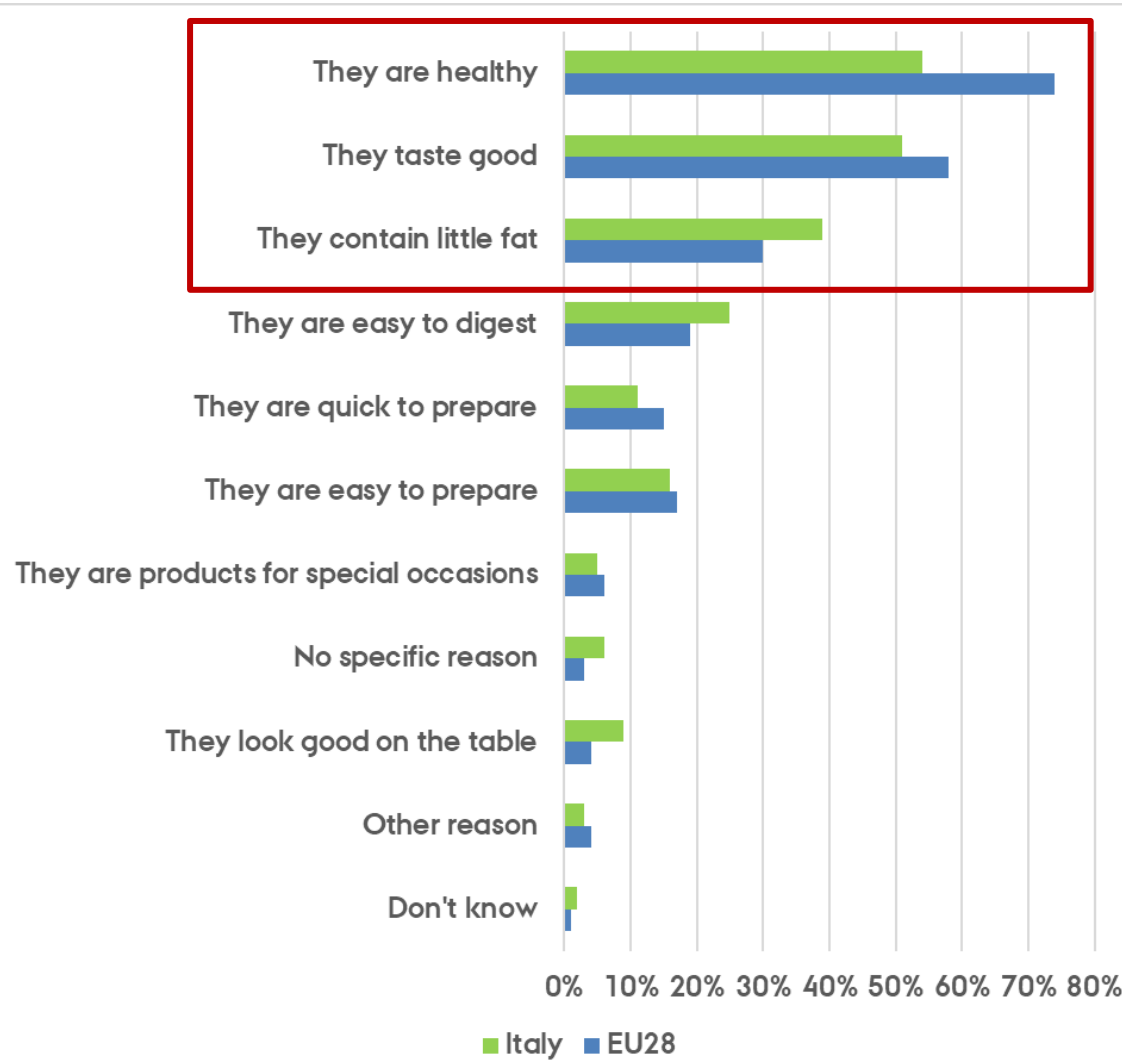


Puzzle by cartoonist Gergely Dudás (2016).

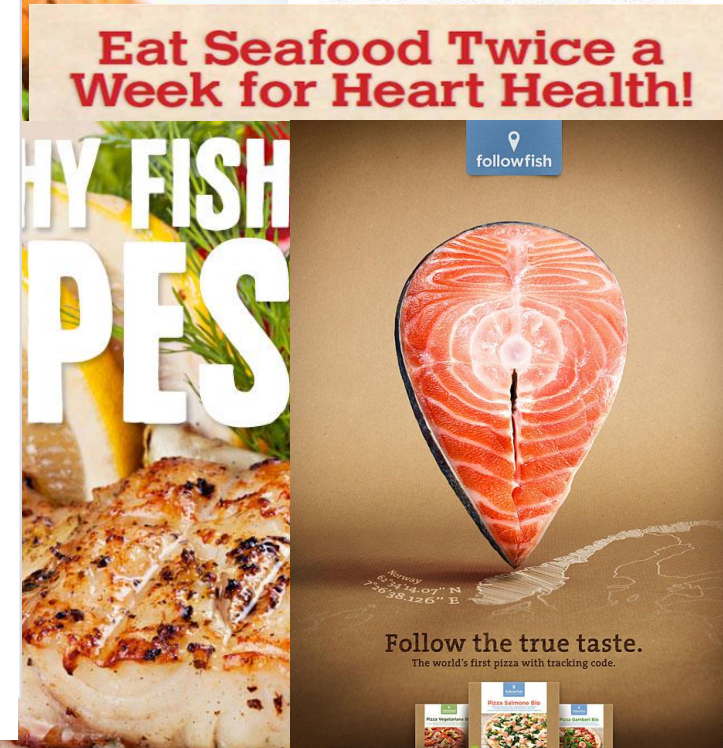
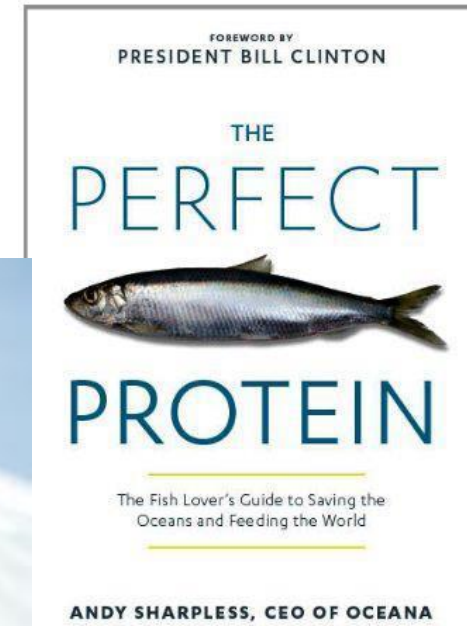
- How can we persuade consumers to migrate from wild-fish products to aquaculture products and address the needs of future consumers?
- How can we influence somebody's existing attitude and what would be the 'line of attack'?

'FISH IS OUR WORLD'

CONSUMER MAIN REASONS FOR BUYING AND EATING FISHERY AND AQUACULTURE PRODUCTS...



(Special Eurobarometer 450: EU28, N= 24452; Italy, N=849; year 2017)

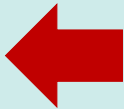


FISH FUTURE: 'RAISING MORE FISH TO MEET RISING DEMAND'



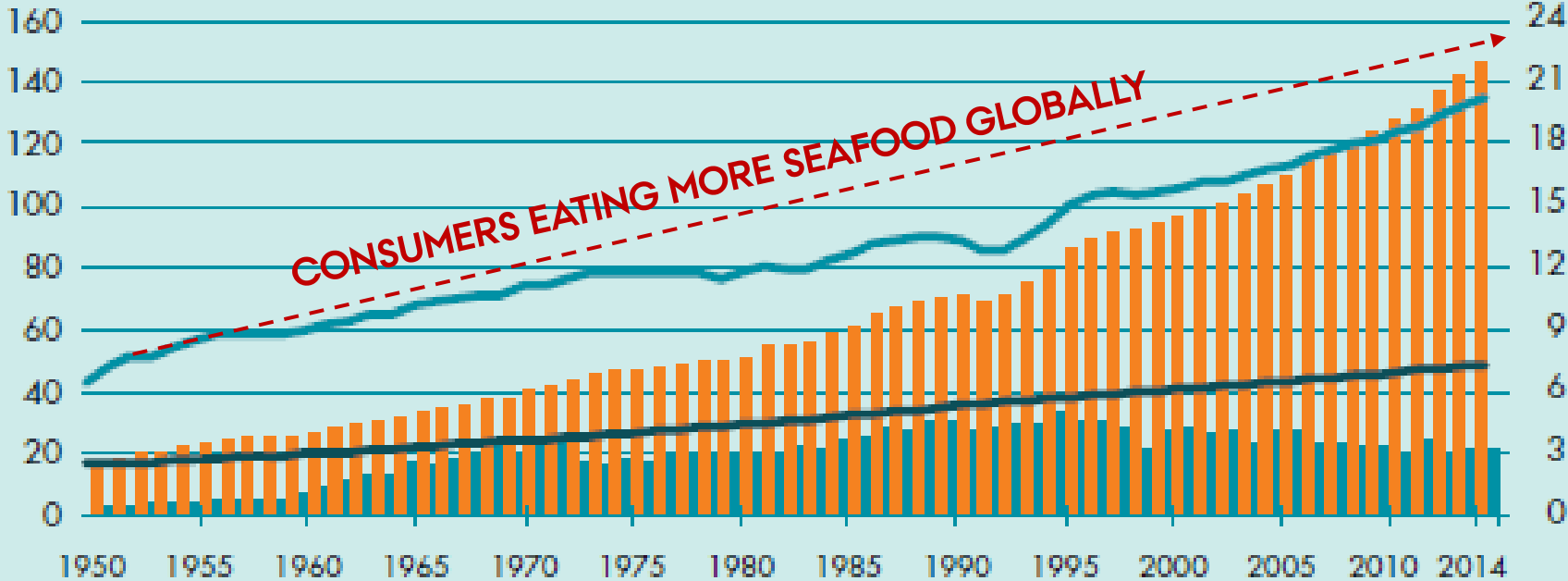
WORLD FISH UTILIZATION AND SUPPLY

Fish utilization
(million tonnes)



↑EU28 ~22kg/capita
↑Italy ~25kg/capita

Population (billions)
and food supply (kg/capita)



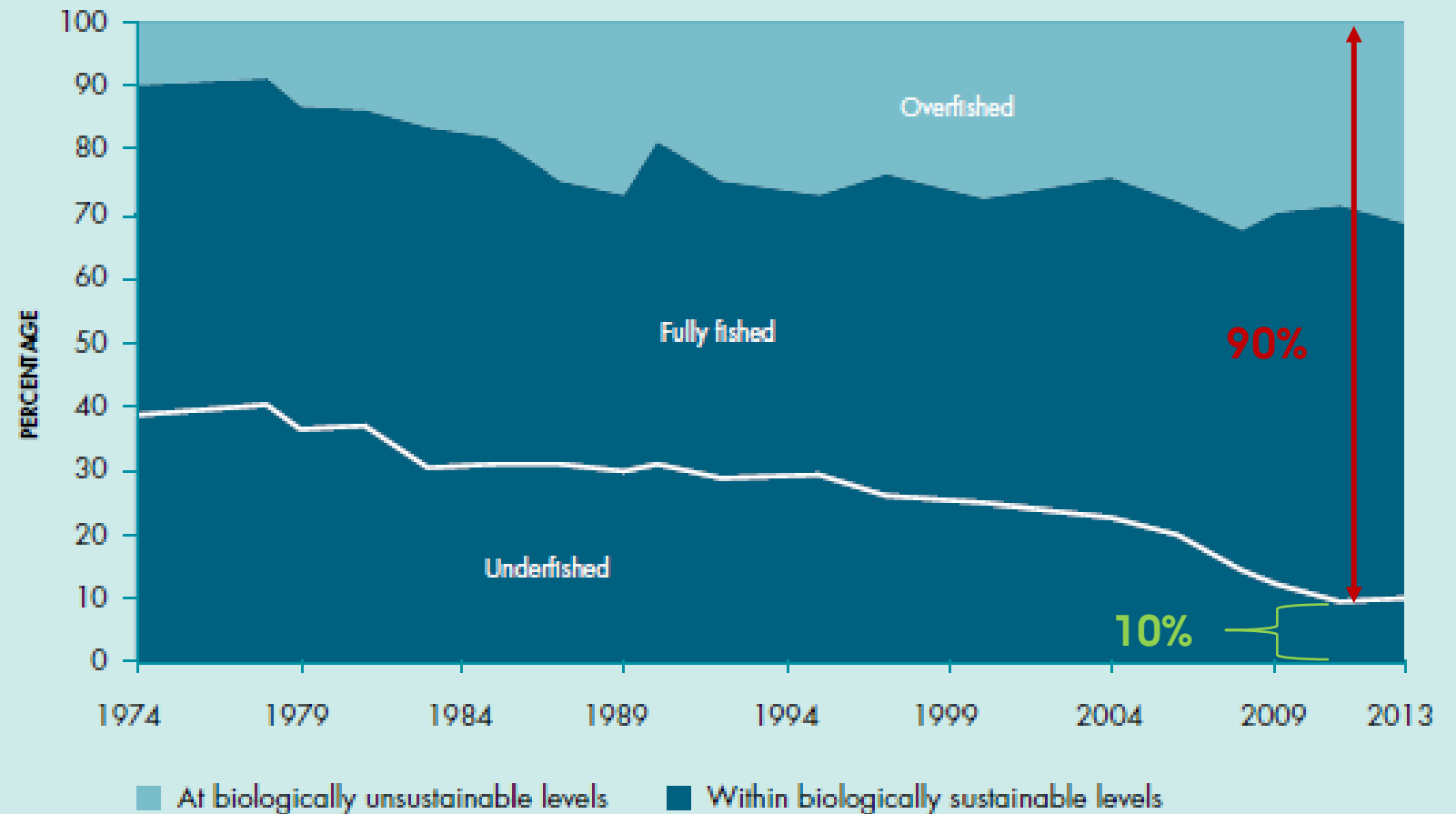
Food
Non-food uses
Population
Food supply

FAO (2016)

'SO LONG AND THANKS FOR ALL THE FISH'



GLOBAL TRENDS IN THE STATE OF WORLD MARINE FISH STOCKS SINCE 1974



Notes: Dark shading = within biologically sustainable levels; light shading = at biologically unsustainable levels. The light line divides the stocks within biologically sustainable levels into two subcategories: fully fished (above the line) and underfished (below the line).

The State of World Fisheries and Aquaculture, FAO (2016)

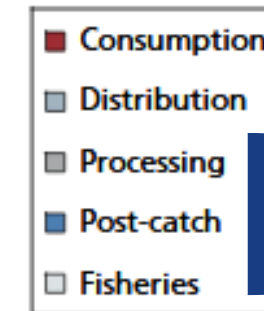
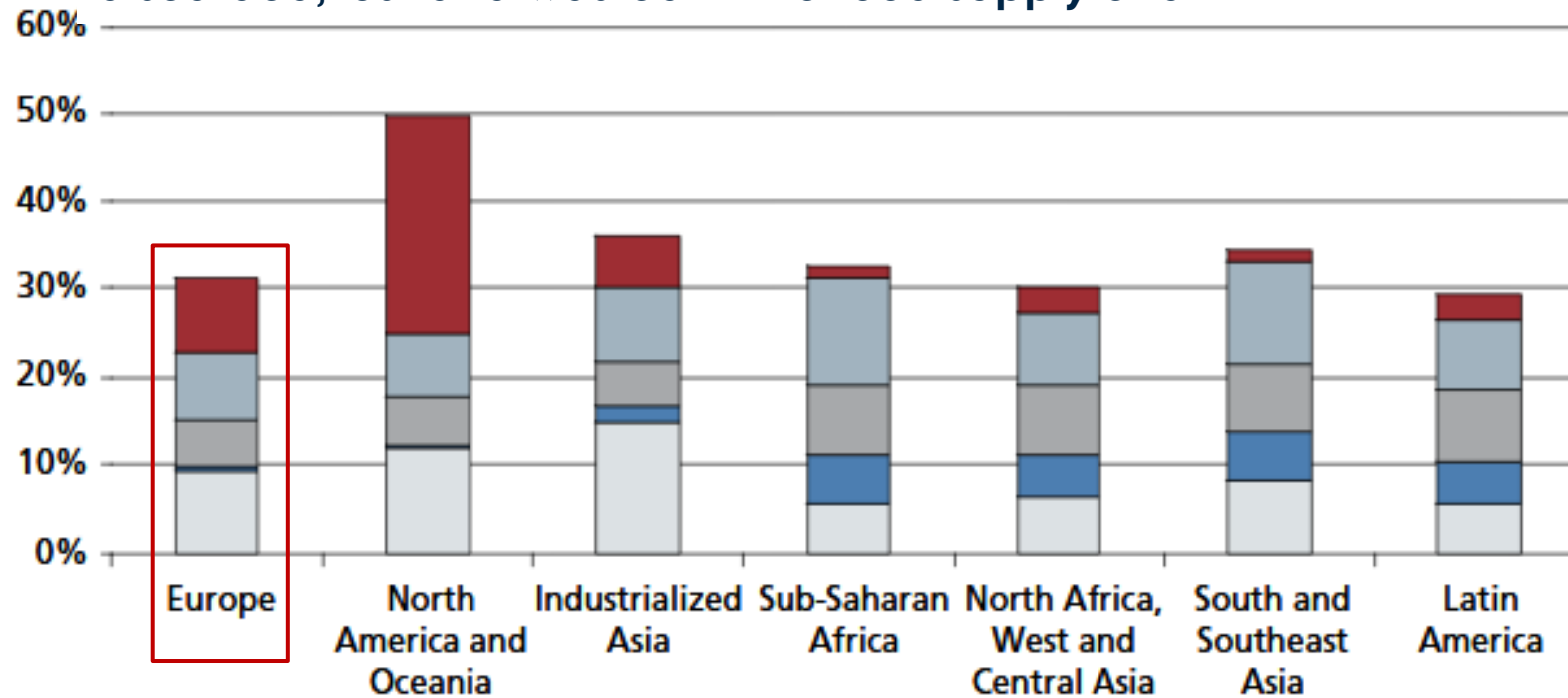
Adapted from <http://www.fishisthedish.co.uk/seafood-stories/kitchen-talk/fish-is-the-dish-school-success>

'FISH WASTE NOT, WANT NOT...'



Photo by Joseph Robertia.

Part of the initial wild-fish catchings (fish and seafood harvested) discarded, lost and wasted in the food supply chain

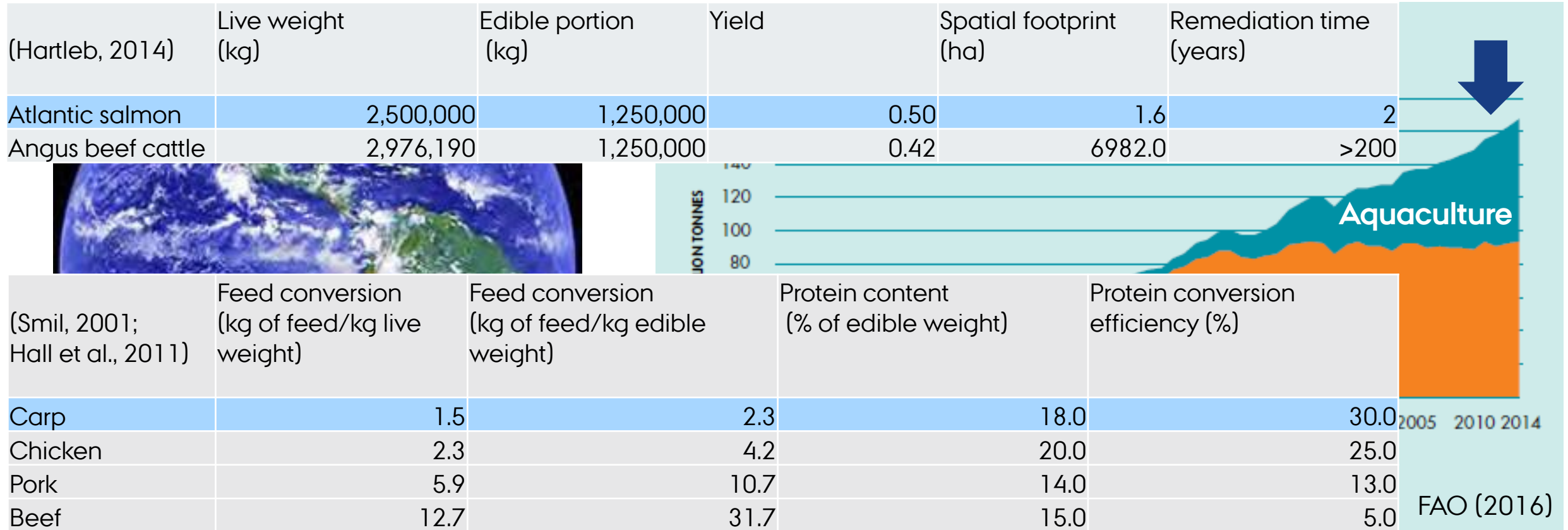


25% used for fishmeal and fish-oil production

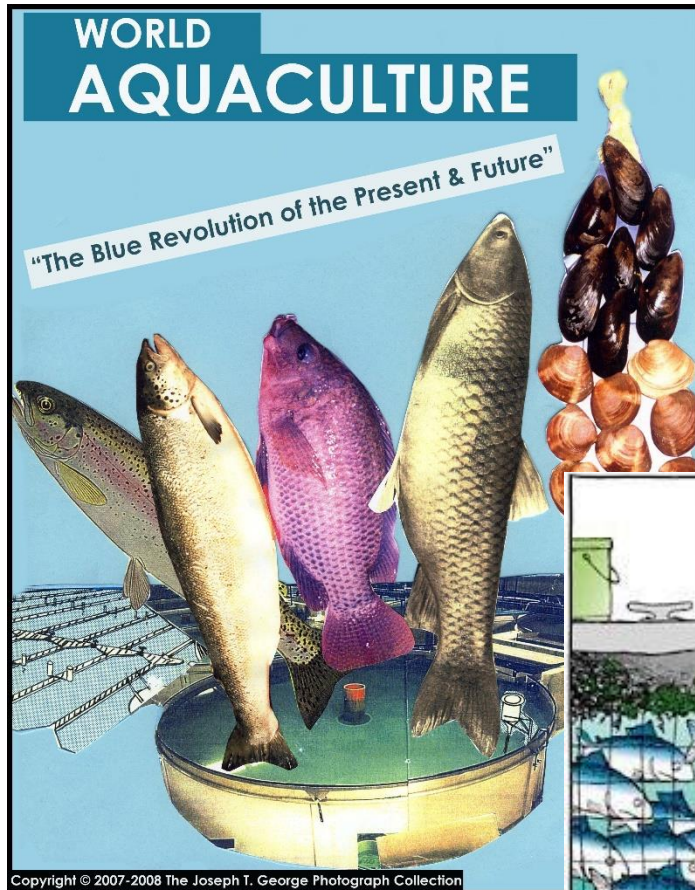
(Shepard 2012; Worldbank, 2013)

(FAO, 2011. Global food losses and food waste)

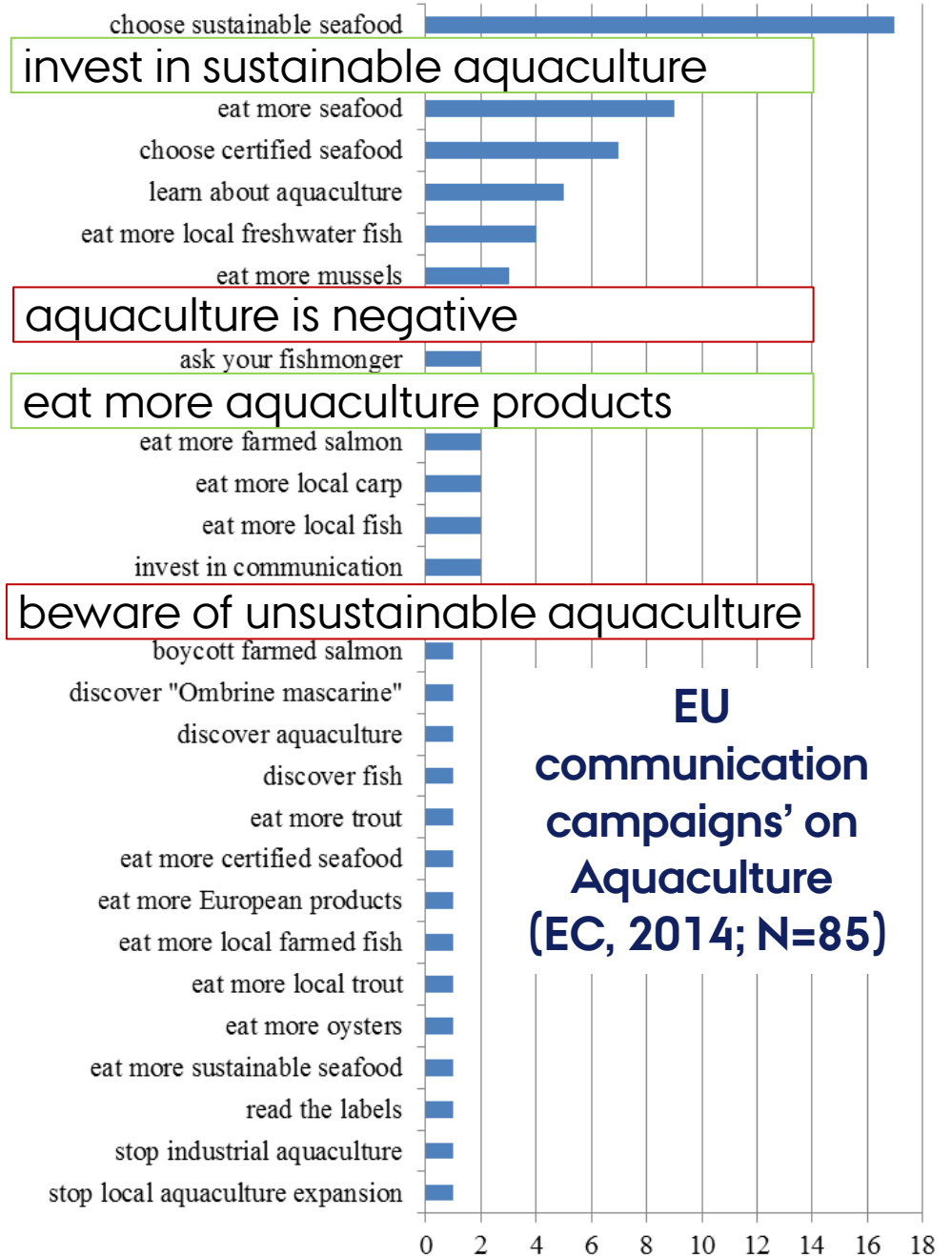
BLUE REVOLUTION: AQUACULTURE WITH POTENTIAL TO FEED THE WORLD?



MIXED MESSAGES



Adapted from <http://donstaniford.typepad.com/files/press-update-december-17-2012.pdf>



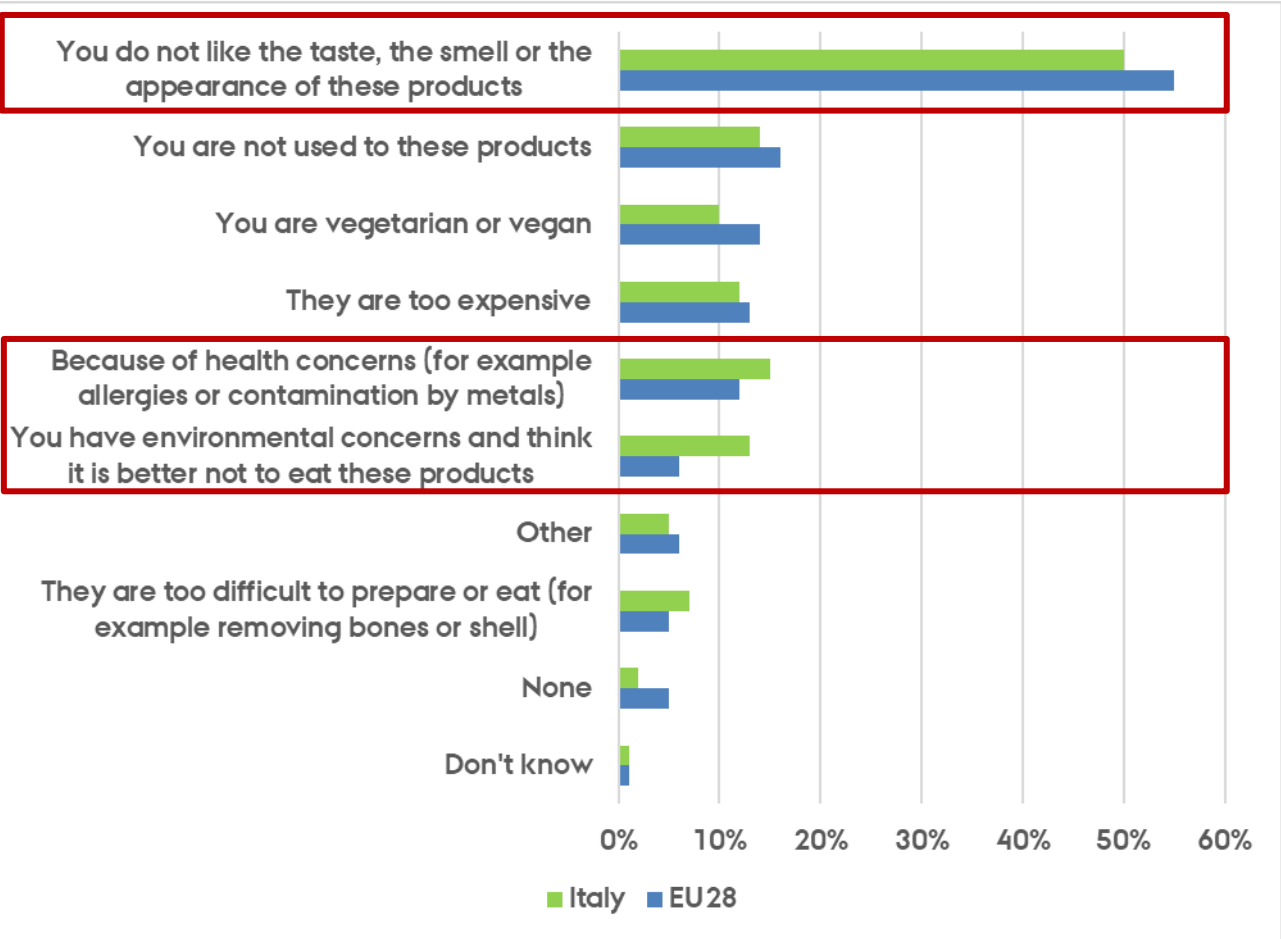
'NOWHERE TO RUN, NOWHERE TO HIDE'

CONSUMER MAIN REASONS TO NEVER EAT ANY FISHERY OR AQUACULTURE PRODUCTS



Crack after

The Scottish farms blame
The govern around the caged salm

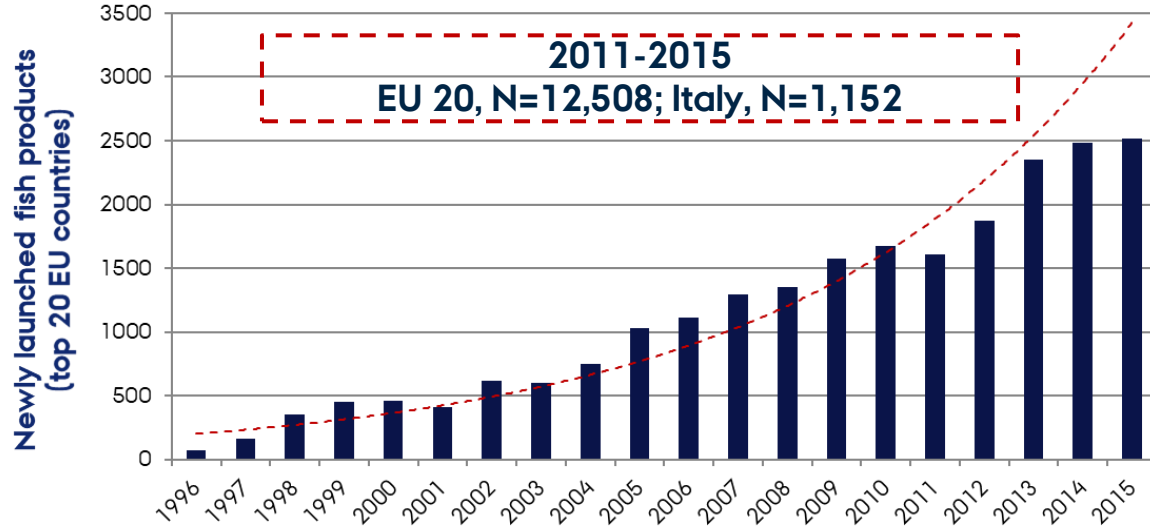


Sepa's sur (Special Eurobarometer 450: EU28, N= 24452; Italy, N=849; year 2017)
contaminated 45 sea lochs in breach of environmental limits since 2006, putting marine wildlife and human health at risk.

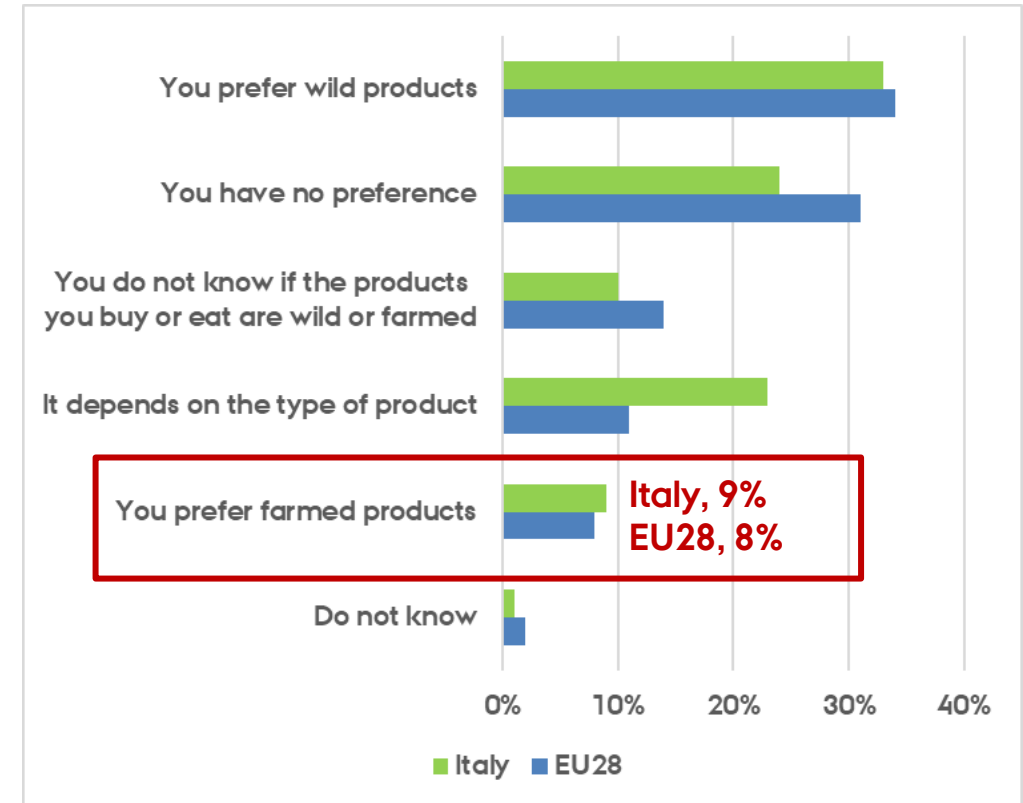


AQUACULTURE PRODUCTS (IN)VISIBLE?

**Do consumers
recognize
aquaculture products?**



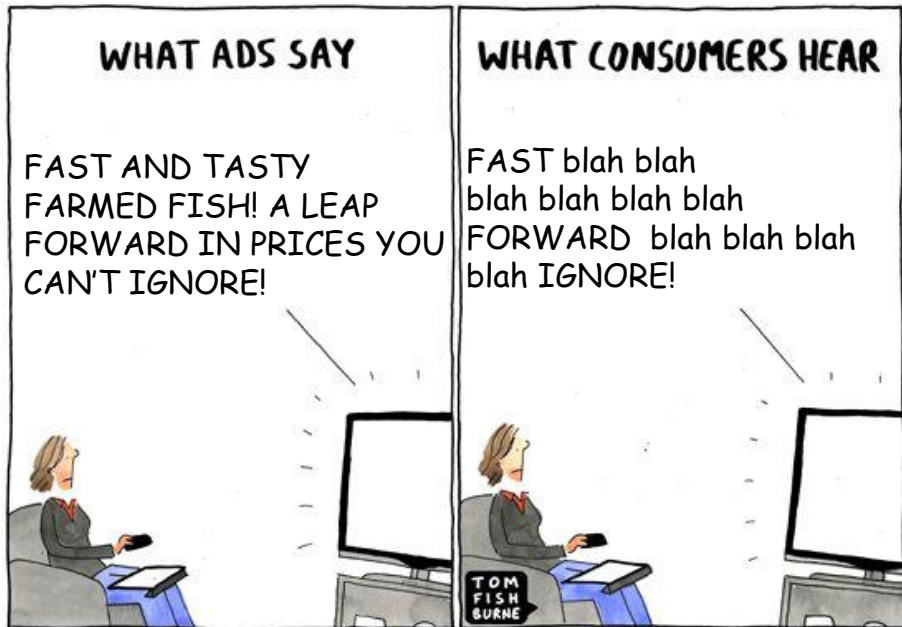
(Mintel, 2016)



(Special Eurobarometer 450: EU28, N= 24452; Italy, N=849; year 2017)

LIKELY TO IGNORE YOUR PRODUCT TOO...IF IT DOESN'T...

How can
aquaculture products
make a difference
and persuade consumers?



Adapted from @marketoonist.com

Stand out
in a crowd
and
...

(Kahneman, 2003)

Feel familiar

(Gigerenzer & Gaissmaier, 2011)

Feel true

(Oppenheimer, 2005)

Feel good

(Stepper & Strack, 1993)

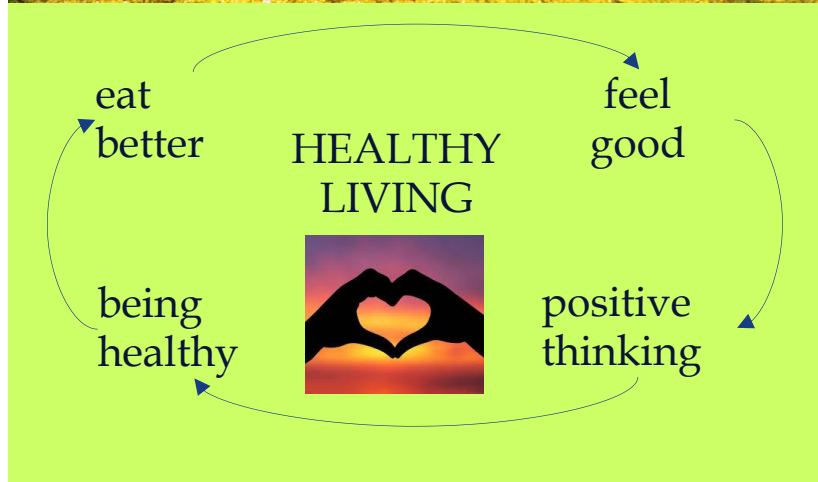
Feel effortless

(Gigerenzer & Goldstein, 1996)

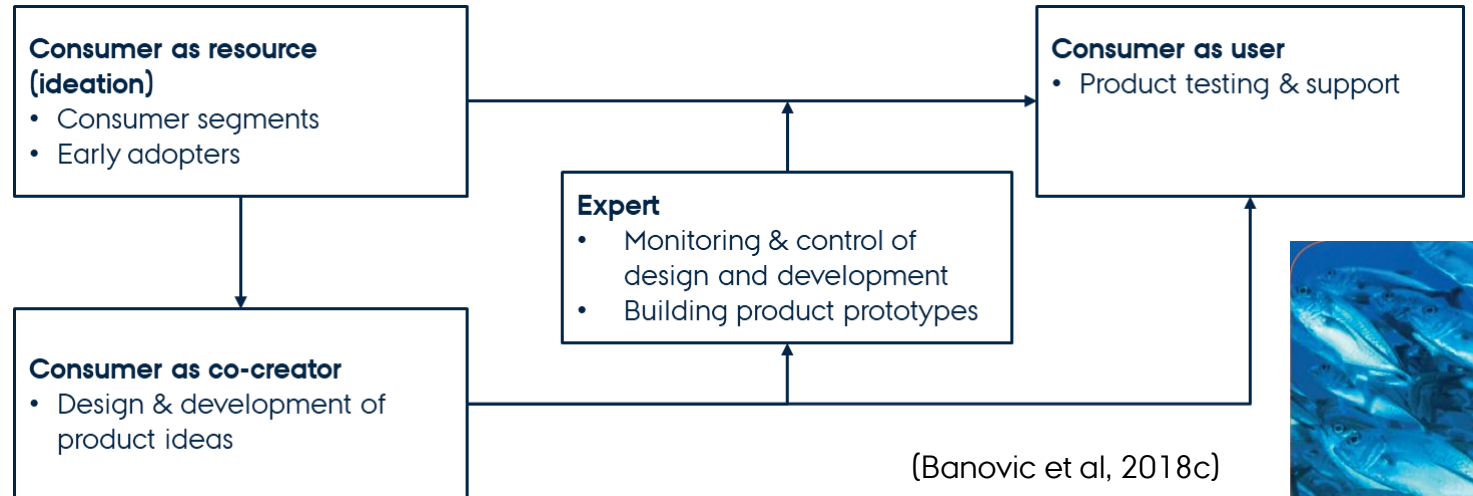
Provide if...then plan

(Gollwitzer, 1999)

SOLVING A PROBLEM: CONSUMER DRIVEN CONCEPT DEVELOPMENT



Adapted from AboutLifez.com & MarkInternational.info



www.diversifyfish.eu

To develop culture, processing and marketing methods for 6 new/emerging finfish species.

CONSUMER AS RESOURCE & CO-CREATOR: 'IT ALL STARTED WITH THE CONSUMER'



Early adopters - Online survey (i.e. FR, GER, IT, SP & UK; N=2500)



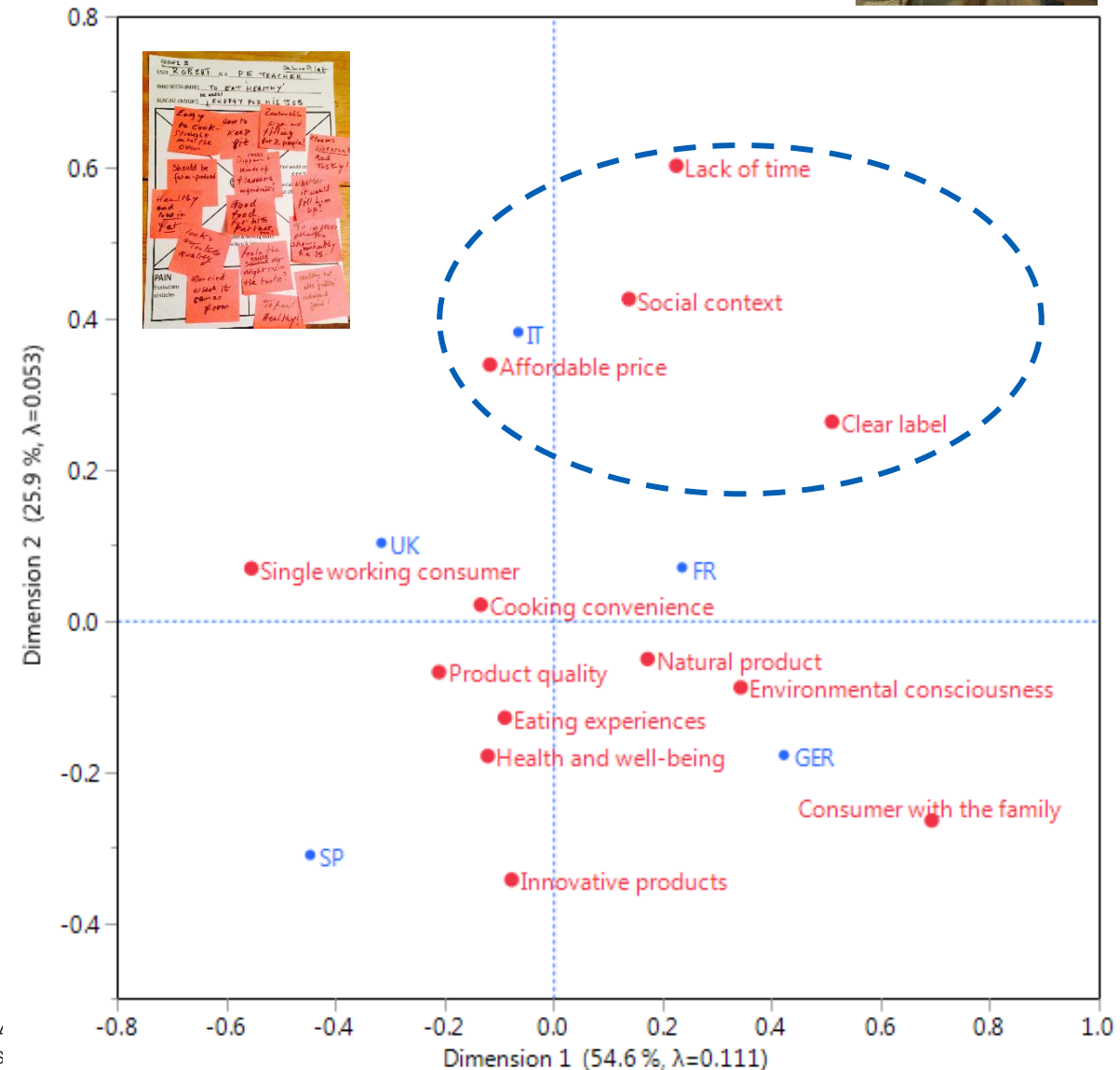
involved innovators (30%), involved traditional (36%), ambiguous indifferent (34%)

Consumer preferences & product ideas

Ten focus groups with early adopters (i.e. FR, GER, IT, SP & UK; N=60)

- aquaculture products need to be **natural**, respect the environment and provide **good eating experience**
- benefits of the aquaculture products linked to the **overall feeling of health** and well-being
- preference for products that are **quick** and **easy to cook**

(Reinders et al, 2016; Banovic et al., 2016)



PRODUCT PROTOTYPES

Fish species	Developed DIVERSIFY product prototypes	
Meagre	Idea 6: Fish burgers shaped as fish	(High processing)
	Idea 4: Ready to eat meal: salad with fish	(Low processing)
Pikeperch	Idea 9: Fish spreads/pate	(High processing)
Grey mullet	Idea 2: Thin smoked fillets	(Medium processing)
	Idea 33: Ready-made fish fillets in olive oil	(Medium processing)
Greater Amberjack	Idea 34: Fresh fish steak for grilling in the pan (Low processing)	



Idea 6: Fish burgers shaped as fish



Idea 4: Ready to eat meal: salad with fish



Idea 9: Fish spreads/pate



Idea 2: Thin smoked fillets



Idea 33: Ready-made fish fillets in olive oil



Idea 34: Fresh fish steak for grilling in the pan

(Diversify - D28.4, D29.4, CTAQUA, IRTA, HCMR)

CONSUMER AS USER: CHOICE EXPERIMENTS

PRODUCT MOCK-UPS



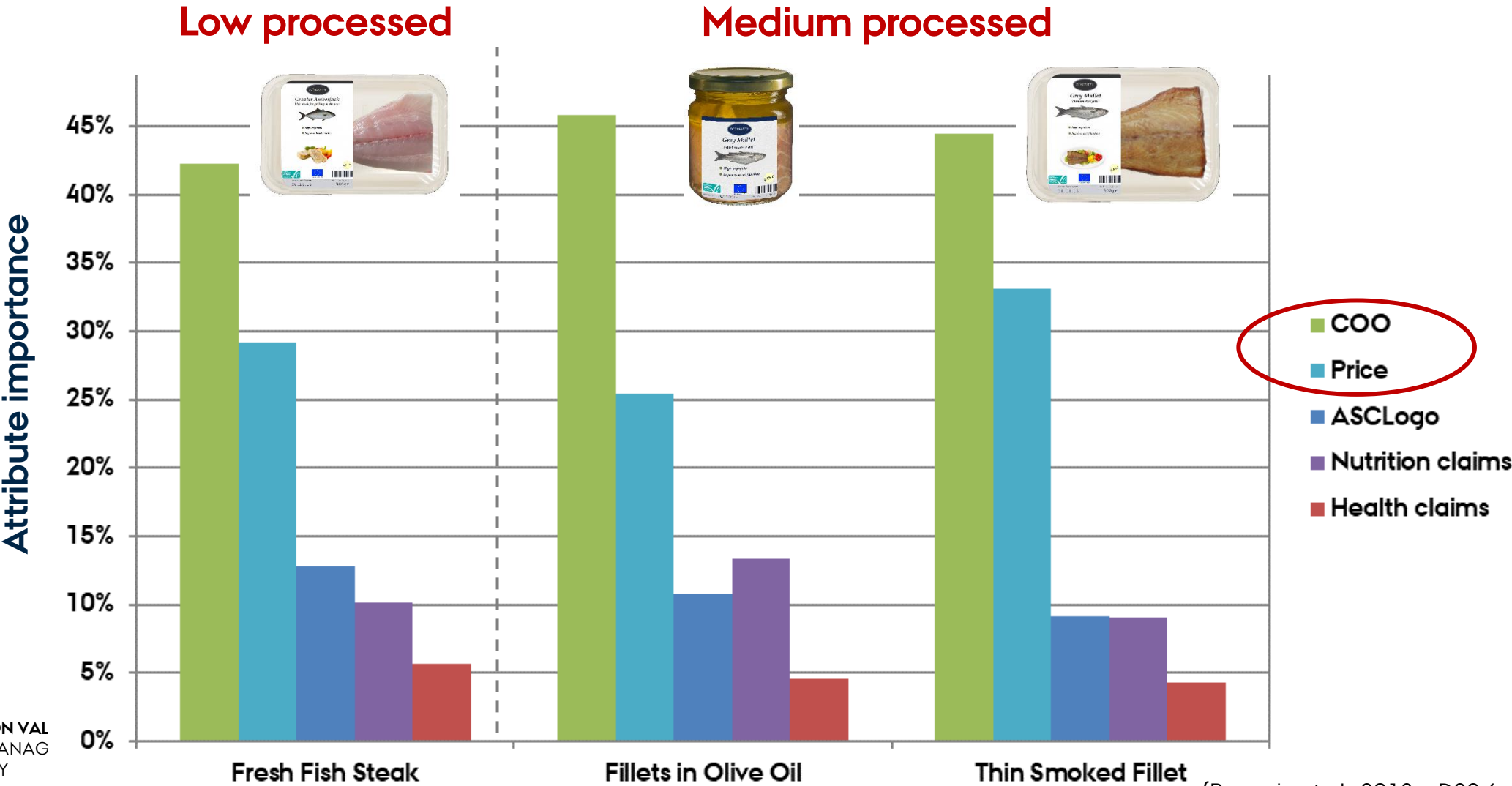
ATTRIBUTE MANIPULATION



(Banovic et al., 2018a; D29.6, AU)

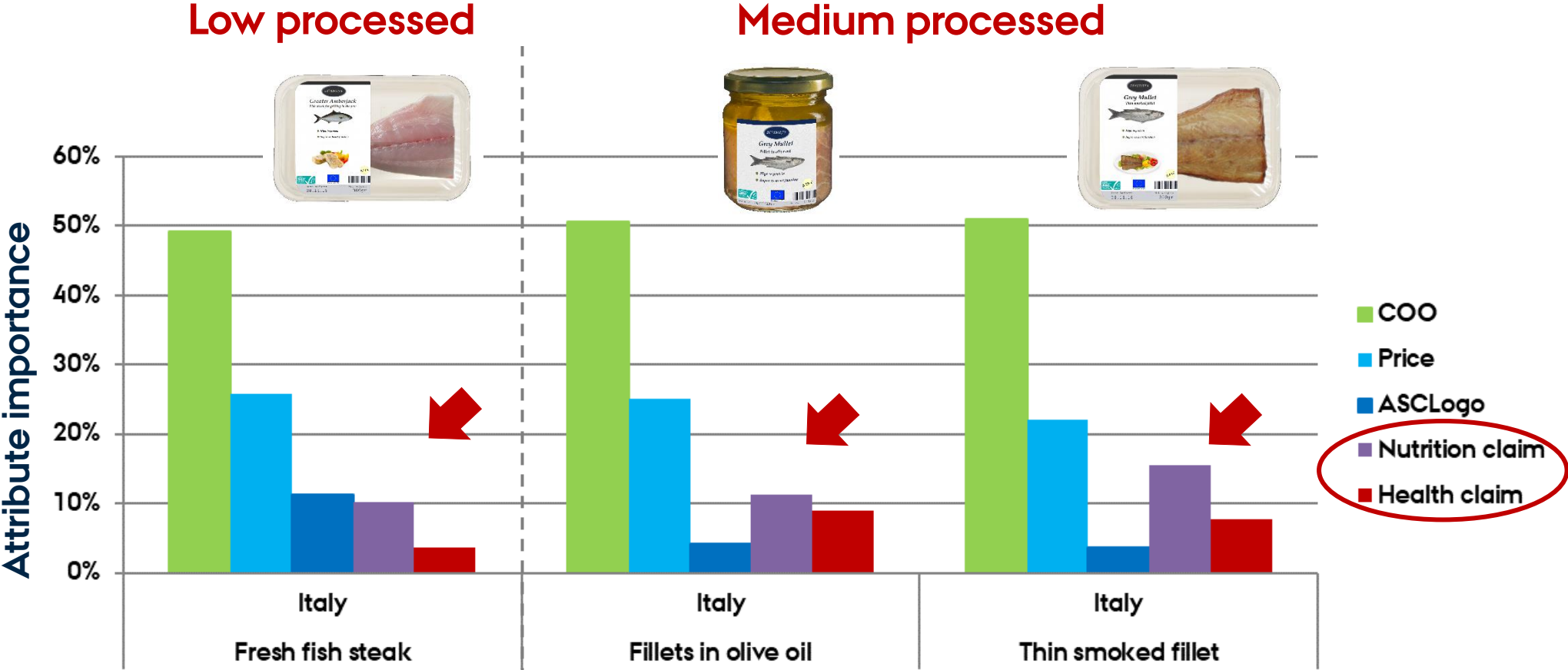
CONSUMER AS USER: COUNTRY OF ORIGIN O INCREASES WTP FOR A PRODUCT

N = 1500,
France
Germany
Italy
Spain
UK



CONSUMER AS USER: COUNTRY OF ORIGIN O INCREASES WTP FOR A PRODUCT

N = 500
Italy



CONSUMER AS USER: COMMUNICATION EXPERIMENTS

Between-subjects design; N = 1565 (France, Germany, Italy, Spain, UK)

1 (promotion - sustainability) x 3 (product processing) x 3 (goal message)

CHOOSE PRODUCTS FROM DIVERSIFY AQUACULTURE!

All products are made with the same attention to quality

Diversify aquaculture fish products come from a carefully selected group of finfish species and a production method that allows for both greater diversity of fish species and new value-added products. The fish species, such as Greater Amberjack, is selected based on its growth, size and excellent product quality. Fish are grown in large cylinder-shaped pools that float on the sea surface and reach down up to 20 meters depth. This sustainable method is used for rearing finfish species in coastal and open waters, within areas sheltered from excessive wave action, but with sufficiently deep water and fast current speeds where the water flows freely through the pools, and allows the fish to grow in clean and highly oxygenated water.

Diversify aquaculture is renowned for its high quality, sustainability and consumer protection standards.

With Diversify aquaculture imagine the benefits for you and your family!

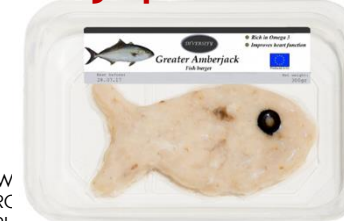
Low processed



Medium processed



High processed



GET HEALTHY PRODUCTS FROM DIVERSIFY AQUACULTURE!

Super-healthy fresh fish steak from Diversify aquaculture
for a healthier-happier day

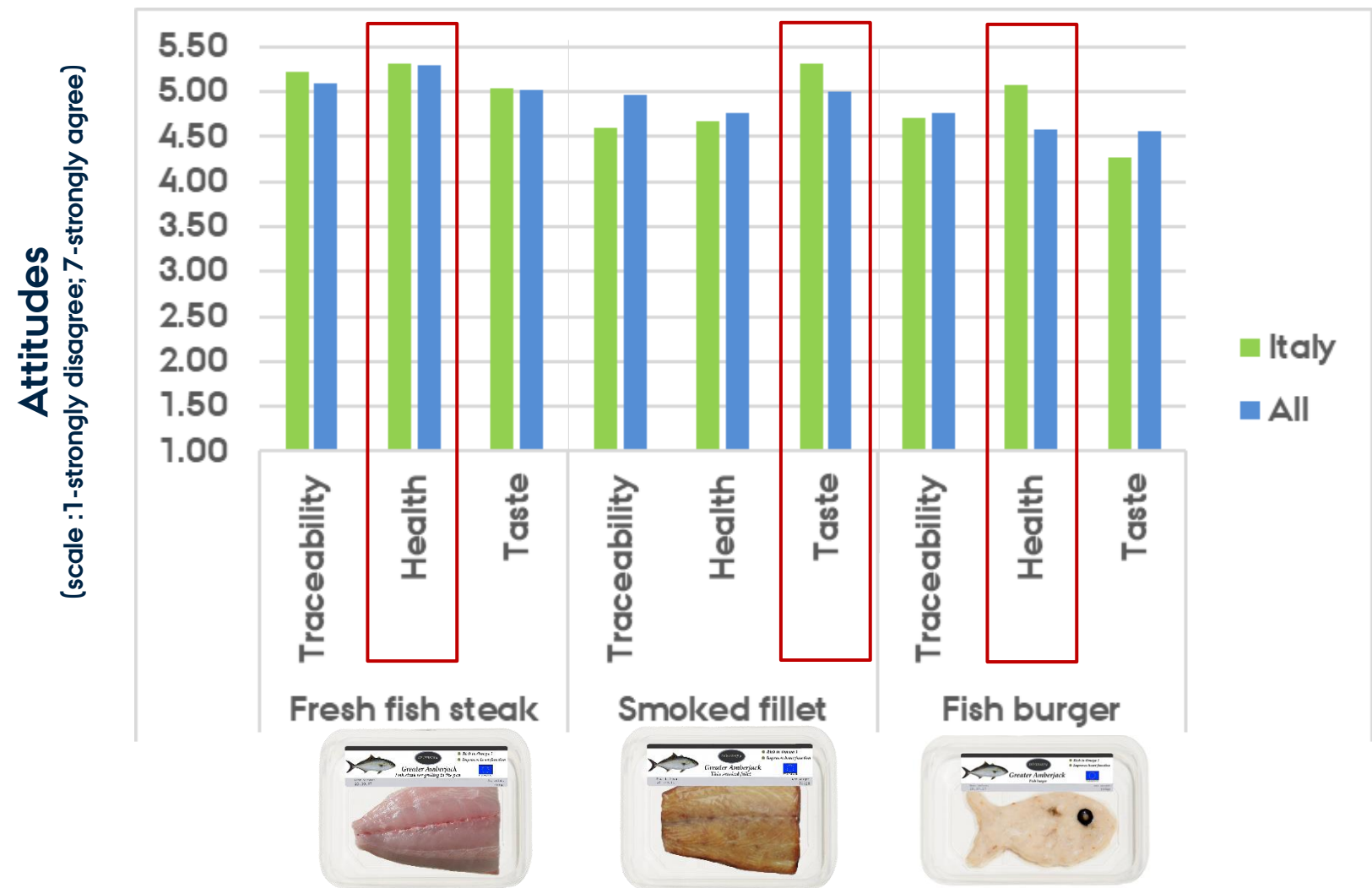
GET TASTY PRODUCTS FROM DIVERSIFY AQUACULTURE!

Super-tasty fish burger from Diversify aquaculture
for a great moment

GET TRACEABLE PRODUCTS FROM DIVERSIFY AQUACULTURE!

Transparent journey of smoked fish fillet from Diversify aquaculture
for a responsible tomorrow

CONSUMER AS USER: PERSUADING THE CONSUMER



WHAT DID WE LEARN FROM DIVERSIFY?

**Aquaculture products that...
Stand out in a crowd...**

Need to feel familiar

- Adapt information to the type of aquaculture (e.g. '...The fish species, as Greater Amberjack, is selected based on its growth, size...') and...
- Highlight the most valuable benefits and attributes (i.e. Country of Origin)

Need to feel true (aquaculture overshadowed by legitimate doubts)

- Better link between production method, environmental concerns, responsible consumption and aquaculture (i.e. traceability, ASC logo)

Need to feel effortless

- Less clutter - convenience at the purchase point and at home - branding, storytelling, recipes essential (e.g. Diversify, 'All the pleasure with little effort')

Need to feel good

- Associations to healthy and tasty diet - invoking positive emotional states (e.g. 'Super-healthy fresh fish fillet from Diversify aquaculture for a healthier-happier day.')

Need to provide if...then plan – goal directed action

- Facilitate product implementation – communicate what consumer should do ('where', 'when' and 'how') (e.g. 'Eating this product is an easy way to protect and improve your cardiovascular health.')



ON VALUE
MANAGEMENT
SYSTEMS

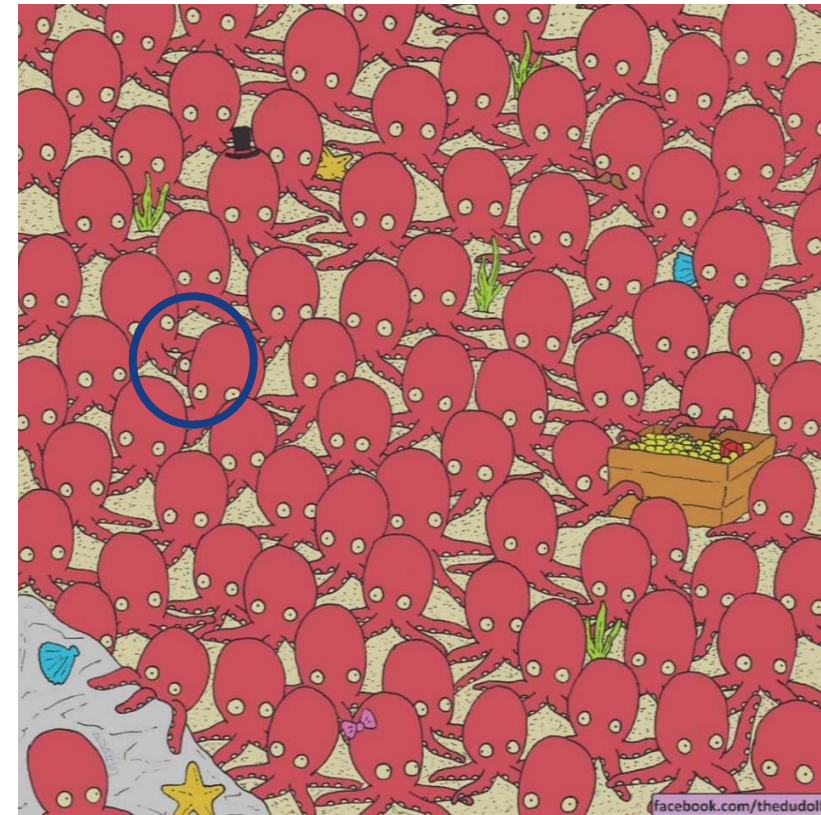


KEY TAKEAWAYS

Aquaculture needs to engage/persuade consumers that their products **can constitute an excellent source of sustainable, healthy and quality food...**

Legitimate doubts and **mixed messages** about **aquaculture intensification** and its **concerns**, should be **overcome by...**

- **promotion through use of specific messages (not generic)**, that can stand competition/defend against bad word of mouth
- **promoting unique production process** and **increasing product visibility** as **traceable, healthy**, but also **tasty** alternatives for modern (protein) diets and responsible consumption



Puzzle by cartoonist Gergely Dudás (2016).

THE WAY FORWARD

Technologies and promotion to use not only fillets but also other parts of fish...

- Learn from ocean's hot dog – fish stick, Josephson (2008)
- Decrease the fish waste at production/processing and consumer level...not only as fishmeal, fish oil... but new consumer products and other...biofuel, composting?
- Processed – low cost - stable fish by products could boost aquaculture production/decrease fish waste...
 - if accepted from...
organoleptic and cultural point of view



Scientific American, March 1956; Magazine ad showing the quick-freezing seafood of the future

This work has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration – DIVERSIFY (KBBE-2013-07 single stage, GA 603121)

<http://www.diversifyfish.eu/>



**THANK YOU
FOR
YOUR ATTENTION!**

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22 FEBRUARY 2018