CURRENT OPPORTUNITIES AND CHALLENGES FOR CONSUMER ACCEPTANCE OF AQUACULTURE PRODUCTS

Marija Banovic

e-mail: maba@mgmt.au.dk

MAPP Centre, Department of Management, Aarhus University, Denmark
FIND THE FISH...

• 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’

FAO (2016)

‘SO LONG AND THANKS FOR ALL THE FISH’

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

The State of World Fisheries and Aquaculture, FAO (2016)
‘FISH WASTE NOT, WANT NOT…’

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

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

(FAO, 2011. Global food losses and food waste)
## BLUE REVOLUTION:
**AQUACULTURE WITH POTENTIAL TO FEED THE WORLD?**

<table>
<thead>
<tr>
<th>Species</th>
<th>Live weight (kg)</th>
<th>Edible portion (kg)</th>
<th>Yield</th>
<th>Spatial footprint (ha)</th>
<th>Remediation time (years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atlantic salmon</td>
<td>2,500,000</td>
<td>1,250,000</td>
<td>0.50</td>
<td>1.6</td>
<td>2</td>
</tr>
<tr>
<td>Angus beef cattle</td>
<td>2,976,190</td>
<td>1,250,000</td>
<td>0.42</td>
<td>6982.0</td>
<td>&gt;200</td>
</tr>
</tbody>
</table>

### Feed conversion

<table>
<thead>
<tr>
<th>Species</th>
<th>Feed conversion (kg of feed/kg live weight)</th>
<th>Feed conversion (kg of feed/kg edible weight)</th>
<th>Protein content (% of edible weight)</th>
<th>Protein conversion efficiency (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carp</td>
<td>1.5</td>
<td>2.3</td>
<td>18.0</td>
<td>30.0</td>
</tr>
<tr>
<td>Chicken</td>
<td>2.3</td>
<td>4.2</td>
<td>20.0</td>
<td>25.0</td>
</tr>
<tr>
<td>Pork</td>
<td>5.9</td>
<td>10.7</td>
<td>14.0</td>
<td>13.0</td>
</tr>
<tr>
<td>Beef</td>
<td>12.7</td>
<td>31.7</td>
<td>15.0</td>
<td>5.0</td>
</tr>
</tbody>
</table>

---

(Hartleb, 2014) (Smil, 2001; Hall et al., 2011)
MIXED MESSAGES

EU communication campaigns’ on Aquaculture (EC, 2014; N=85)

- invest in sustainable aquaculture
  - choose sustainable seafood
  - eat more seafood
  - choose certified seafood
  - learn about aquaculture
  - eat more local freshwater fish
  - eat more mussels

- eat more aquaculture products
  - eat more farmed salmon
  - eat more local carp
  - eat more local fish
  - invest in communication

- beware of unsustainable aquaculture
  - boycott farmed salmon
  - discover “Ombrine mascaraire”
  - discover aquaculture
  - discover fish
  - eat more trout
  - eat more certified seafood
  - eat more European products
  - eat more local farmed fish
  - eat more local trout
  - eat more oysters
  - eat more sustainable seafood
  - read the labels
  - stop industrial aquaculture
  - stop local aquaculture expansion

‘NOWHERE TO RUN, NOWHERE TO HIDE’
CONSUMER MAIN REASONS TO NEVER EAT ANY FISHERY OR AQUACULTURE PRODUCTS

You do not like the taste, the smell or the appearance of these products
You are not used to these products
You are vegetarian or vegan
They are too expensive
Because of health concerns (for example allergies or contamination by metals)
You have environmental concerns and think it is better not to eat these products
Other

(Special Eurobarometer 450: EU28, N= 24462; Italy, N=849; year 2017)
contaminated 45 sea lochs in breach of environmental limits since 2006, putting marine wildlife and human health at risk.
Do consumers recognize aquaculture products?

(Mintel, 2016)

2011-2015
EU 20, N=12,508; Italy, N=1,152

Do consumers recognize aquaculture products?

(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?

FAST AND TASTY FARMED FISH! A LEAP FORWARD IN PRICES YOU CAN'T IGNORE!

FAST blah blah blah blah blah FORWARD blah blah blah blah IGNORE!

Stand out in a crowd and ...

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)

(Adapted from marketoonist.com)

MAPP – RESEARCH ON VALUE CREATION IN THE FOOD SECTOR
DEPARTMENT OF MANAGEMENT
AARHUS UNIVERSITY

MARJA BANDVIC
ASSOCIATE PROFESSOR

3RD PROMOTIONAL WORKSHOP
VERONA, ITALY
22 FEBRUARY 2018
SOLVING A PROBLEM:
CONSUMER DRIVEN CONCEPT DEVELOPMENT

Consumer as resource (ideation)
- Consumer segments
- Early adopters

Consumer as co-creator
- Design & development of product ideas

Expert
- Monitoring & control of design and development
- Building product prototypes

Consumer as user
- Product testing & support

---

Adapted from AboutLifez.com & MarkInternational.info

Banovic et al, 2018c
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

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

(Diversify - D28.4, D29.4, CTAQUA, IRTA, HCMR)
CONSUMER AS USER: CHOICE EXPERIMENTS

PRODUCT MOCK-UPS

ATTRIBUTE MANIPULATION

Medium processed

Low processed

Nutrition claim

Health claim

Price

Certification logo

Country of Origin

(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

Low processed
Medium processed

Attribute importance

Fresh Fish Steak
Fillets in Olive Oil
Thin Smoked Fillet

COO
Price
ASCLogo
Nutrition claims
Health claims

(Banovic et al., 2018a; D29.6, AU)
CONSUMER AS USER: COUNTRY OF ORIGIN O INCREASES WTP FOR A PRODUCT

N = 500
Italy

Low processed
Medium processed

Attribute importance

Italy
Fresh fish steak
Fillets in olive oil
Thin smoked fillet

(CFoo
Price
ASC Logo
Nutrition claim
Health claim

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

---

**CHOSE 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!

---

**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

---

Banovic et al., 2018b; D29.7; D29.8, AU
CONSUMER AS USER: PERSUADING THE CONSUMER

(Banovic et al., 2018b; D29.7; D29.8, AU)
WHAT DID WE LEARN FROM DIVERSIFY?

**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.’)
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
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
THANK YOU FOR YOUR ATTENTION!

Marija Banovic

e-mail: maba@mgmt.au.dk

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/