The role of consumers in promoting global food security

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Four aspects of food security (FAO’s identification)

• **AVAILABILITY** of food: “Supply side” of food security including stock levels and trade.
• **ACCESS** to food: with a greater policy focus on incomes, expenditure, markets and prices.
• **UTILIZATION**: through good feeding practices, food preparation, diversity of the diet and intra-household distribution of food.
• **STABILITY**: Adverse weather conditions, political instability, or economic factors (unemployment, rising food prices) may have an impact on access to food.
Roles of market and consumers

MSC Ecolabel in Japan

- MSC (Marine Stewardship Council). Head office in UK.
- Started since 2000 (and 2006 in Japan)
- Japanese producer certificate include: (i) The Kyoto Danish Seine Fishery Federation snow crab and flathead flounder fishery was the first Japanese fishery in 2008, (ii) Tosakatsu Suisan Japan pole and line skipjack tuna fishery in 2009, (iii) Scallop fishery in Hokkaido in 2013, and several other fisheries under assessment process.
Snow crab escape holes installed in fishing nets for Kyoto Danish Seine fisheries during the seasons for flounders

Source: Miyajima et al., 2007

Japanese original eco-label

- MEL (Marine Ecolabel Japan), Head-office in Tokyo.
- The first certification was issued in 2008 for red snow crab (Chionoecetes japonicus). Several certified fisheries exist. Products have not yet distributed outside of Japan.

Source: www.suisankai.or.jp
Some challenges

Consumers are willing to pay extra money for labeled fish, but

• fish distributors are not always cooperative,
• fisheries in developing countries needs additional considerations, and
• more supports are needed from consumers on habitat conservation (in addition to fish stock conservation)
Fish distributors are not always cooperative

Fisheries in sub-arctic areas and sub-tropical areas are different
fisheries in tropical areas may need some other criteria for eco-label certifications
Specifically, more attention is needed for habitat conservation (current eco-labeling and other management frameworks place too much emphasis on fish itself)

<table>
<thead>
<tr>
<th>Catch Quota based management</th>
<th>Area based management</th>
</tr>
</thead>
<tbody>
<tr>
<td>All attention is on fish and fishing methods. (example: “allowable catch” at UNCLOS 61, or RFMO regulations)</td>
<td>Attention is mostly on habitat conservation (example: territorial use rights fishery managements in Japan)</td>
</tr>
</tbody>
</table>

Ecosystem services are highlighted at Millennium Ecosystem Assessment

Ecosystem services include:
- Supporting (Nutrient cycling, primary production)
- Provisioning (food, fresh water)
- Regulating (Climate regulation)
- Cultural (Aesthetic, recreational)
We conducted a survey on: How people prioritize these services?

Marine ecosystem services: benefits to people

An online survey was conducted on human utility of marine ecosystem services and behavioral intentions for marine conservation

<table>
<thead>
<tr>
<th>Survey method</th>
<th>Online survey (contract with Macromill and UTokyo)</th>
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<tbody>
<tr>
<td>Survey period</td>
<td>February 15-17, 2013</td>
</tr>
<tr>
<td>Respondents</td>
<td>1,100 residents * (Tokyo, Osaka, Ishikawa, Nagano, Shizuoka)</td>
</tr>
<tr>
<td>Analysis methods</td>
<td>- Factor analysis</td>
</tr>
<tr>
<td></td>
<td>- Structural equation model</td>
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</table>

* Ultimately 814 responses were used after being stratified according to the gender and age per each prefecture.
Chapter 2: Human utility of marine ecosystem services and behavioural intentions for marine conservation (3)

- 18 questionnaire items on marine ecosystem services developed based on a review of existing literature

Q1 Without foodstuffs like fish and seaweed provided by the sea, our diet would be extremely affected.

1 strongly agreed
2 agreed
3 neither
4 disagreed
5 strongly disagreed

Q7 (sandy beaches to reduce waves)

Q12 (marine recreational opportunities)

Q18 (place for marine organisms to live)

Latent variables and behavioral intentions in our hypothetical model (structural equation analysis)
Wakita et al, (2014) Human utility of marine ecosystem services and behavioural intentions for marine conservation in Japan

Standardized estimated hypothetical model

* “a” indicates significance at the 0.001 level. Dashed line indicates path that is not significant at 0.05 or better.

GFI=0.846  
AGFI=0.807  
RMSEA=0.089

Behavioural intentions are most positively driven by “Cultural Benefits” including recreational values.

Conclusion

- Current eco-labeling schemes can be effective under certain conditions, but additional considerations are needed for small-scale fisheries in tropical or sub-tropical areas.
- To do this, a new certification criteria to promote habitat conservation would be a good option.
- Appealing consumers on cultural value of ocean conservation would be a good strategy.
- Conserving human lifestyles in coastal regions through “fair trade” could be an option.
Further challenges

• More attention is needed for the conservation of ecosystem services during the discussion at the UN process.
• Non-fishing threats to marine ecosystems, such as climate change, land-based pollution, or other human activities to influence river and coastal environment need to be regulated.

Acknowledgement

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http://ocean.fs.a.u-tokyo.ac.jp/research-e.html