ECO-LABELED SEAFOOD IN JAPANESE MARKET:WTP ANALYSIS USING CHOICE EXPERIMENT

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ABSTRACT

Seafood ecolabel, such as Marine Stewardship Council (MSC) label continues to expand worldwide, particularly in European and US markets. Consumers' response to ecolabeled seafood products in these markets has been studied in the past, mostly with encouraging results. Meanwhile, and after a decade since the establishment of MSC, seafood ecolabel has not penetrated the Japanese market, where per capita seafood consumption is by far the largest in the world. Focus group sessions suggested that typical Japanese consumers are simply not fully aware of the state of world fish stocks. This raised several interrelated questions: will Japanese consumers demand sustainably fished products, as indicated by the label, after being informed of the situation? Will there be a price premium for ecolabeled products? Will the content of information matter? To answer these questions, we implemented a web-based national survey and discrete choice experiment on primary shoppers. Provided that (a) the consumers are made aware of the fisheries' conditions and its relations to the ecolabel and (b) the label can be trusted, our results suggest that there is a significant demand for eco-labeled seafood in Japan. We also analyzed how other important attributes (e.g., wild/famed, domestic/import) interact with the effect of ecolabel.

Keywords: ecolabeled seafood, Japanese market, choice experiment, consumer preference

INTRODUCTION

Ecolabeling is widely used in today's marketplace to allow consumers to distinguish environmentally friendly products among the large array of product offerings. The ultimate goal of implementing ecolabeling is to achieve the overall improvement in environmental quality by creating market-based incentives for producers and others in the supply chain to alter their behavior in more environmentally friendly manner. In the context of seafood products, the main environmental objective is to protect the marine eco-system by supporting sustainable fishery management. The most well-known example is the Marine Stewardship Council (MSC) label, which after a decade of its establishment has 63 certified fisheries and 131 others in assessment around the world (Marine Stewardship Council 2010).

An important premise of ecolabeling concept is that there is a demand for products that are environmentally friendly. More specifically, the critical assumption is that consumers prefer products that are certified as environmentally friendly than other products whose negative environmental impacts, from production, distribution, and consumption, are likely to be larger or simply unknown to consumers. It is worth pointing out that the improvement in environmental quality is a public good, and the eco-labeling scheme is essentially calling for a private provision of public goods from consumers by choosing environmentally friendly products. As economic theory suggests an undersupply of such voluntary actions, it is understandable that consumer demand for environmentally friendly products seems stronger when the eco-products also possess personal benefits. A prominent example is the organic market, where organic products are recognized from consumers as safer, healthier, and better tasting alternatives to conventional products, as well as more environmentally friendly. The seafood ecolabels, on the other hand, are purely based on the public benefit, i.e., sustainable fisheries. For example, an MSC certified seafood product is not necessarily healthier or safer than non-certified products. The fact that seafood ecolabels are not bundled with private benefits poses a major challenge for the success of seafood ecolabeling: will consumers contribute to achieve sustainable fisheries by choosing, or even paying premium for, ecolabeled seafood?

Previous studies on consumers' preference for ecolabeled seafood were mostly conducted in European and US markets, and showed encouraging results overall. Earlier studies conducted in the late 1990s and early 2000s, just around the time the MSC began the fishery certification process in 1999, showed that US consumers preferred ecolabeled products as long as the premiums are sufficiently small (Wessells, Donath, and Johnston 1999; Johnston et al. 2001). Similar results were found for UK consumers (Jaffry et al. 2004.Johnston et al. (2001) Johnston et al. (2001) compared the preference for ecolabeled seafood between the US and Norwegian consumers, and found that while both countries' consumers prefer ecolabeled seafood there are significant heterogeneities in the details of their preferences. More recent studies looked at how the appeal of ecolabel compare with labels indicating quality and brand, and found that ecolabel has a strong appeal to the US and UK consumers (Jaffry et al. 2004; Johnston and Roheim 2006).

Among the growing literature on consumer demand for ecolabeled seafood, however, very few, if at all, similar analysis in the Asian market exists—despite the fact that Asia has the world's largest seafood market consisting 66% of total seafood consumption (FAO 2009). In particular, lack of information on the Japanese market is surprising, given that Japan is the largest seafood importer—approximately 30% of the world's share—and has the highest seafood consumption volume per capita (FAO 2009). Yet, the availability of ecolabeled seafood products in the Japanese market is quite limited.[1] A wider acceptance and availability of ecolabeled seafood would unambiguously yield a nontrivial improvement with respect to the purpose of seafood ecolabeling, i.e., to promote sustainable fisheries.

Whether or not the Japanese consumers have similar preferences over ecolabeled seafood products as was found in Europe and US markets is critical information missing from the literature, which this study attempts to fill.

Before tackling the question of whether Japanese consumers prefer ecolabeled seafood, we set out to obtain some background information about their perception on seafood ecolabel. This was done through two sessions of focus group meetings.[2] The major finding from these exploratory discussions was that average Japanese consumers—primary grocery shoppers in our case—were simply not fully aware of the state of world's fisheries, and consequently did not recognize the need for ecolabel on seafood. According to the participants, this was due to the fact that they have not seen any signs in their daily seafood shopping experience; the availability of fish, both in quantity and variety, and their retail prices have not changed much. What was happening in the background were things such as depleted domestic species being replaced by the imports, or short in supply species being replaced by similar and more abundant species. But the consumers were not aware of such details, and without the knowledge they cannot act. The lack of awareness also implied that consumers need to be informed regarding seafood ecolabels—what are the purposes of these labels and what does it mean a product to have a seafood ecolabel—before they are asked about their preferences for ecolabeled seafood products. This point led to another question: how do the context and the source of the information affect their preferences?

In this article, we aim to investigate the Japanese consumers' preferences for ecolabeled seafood products by estimating the consumers' willingness to pay for the ecolabel, using the conjoint choice experiment. The relative valuation and potential interactions (complementarity or substitutability) of ecolabels to other labels, such as country of origin and farmed/wild caught are also investigated. In addition, given our findings from the focus group sessions we provided three different patterns of information on explaining the state of world's fish stocks to examine whether the information content and source has an effect on their revealed demand for ecolabeled seafood products.

METHODOLOGIES

In this study, the design of the consumer preference elicitation is in two-fold. In the first stage, respondents are exposed to an information treatment where a panelist is randomly assigned to one of the three sets of information regarding the fish stock situations. They are also asked about how they perceive the information in terms of credibility, exaggeration, and interest. In the second stage, respondents purchase intentions are elicited through choice experiments. Using the responses from the choice experiment, the valuation of various labels related to seafood, as well as the effect of information and the perception of the information on the purchase intentions, are then analyzed.

Previous studies showed that information matters when eliciting individual's preference (e.g., Cameron 2005). In order to investigate the effects of different information on consumers' purchase intentions, we constructed three sets of information treatments with varying sources and contents (see appendix for actual wording and diagrams shown to the respondents). The first treatment is the *minimal information*, simply states that fish stocks worldwide are decreasing due to overfishing with a list of specific species as examples. This is the baseline information that all respondents received regardless of their treatment assignment. This information did not specify the source of the claim. The second treatment (the *FAO information*) added statistical information from FAO's State of the World Fisheries and Aquaculture (FAO 2007), along with a pie chart and a graphic explaining the terminologies regarding the level of exploitation used in the statement. FAO was cited as a source of the information. The third treatment (the *Science information*) added the information about the research results published by Worm

et al. (2006) in Science, stating that the commercial fisheries will collapse in 40 years if the current overfishing continues, along with the diagram appeared in the New York Times based on this research.[3] The Science Journal was cited as the source of the information. Respondents were also asked to state if they felt the information provided was credible, not credible, exaggerating the reality, understating the reality, interesting, or not interesting.

We use choice experiment method to elicit Japanese consumers' preferences for ecolabeled seafood. Choice experiment is consistent with random utility theory (Train 2003), and it is said to be preferable to other conjoint methods including contingent valuation (Mackenzie 1993; Boxall et al. 1996; Adamowicz et al. 1998). Choices can be explained by the combination of variations in attributes and socioeconomic characteristics, whereas the usual contingent valuation method uses only the variations in costs and socioeconomic characteristics, leading to more efficient estimates (Mogas, Riera, and Bennett 2006). Given these advantages, the use of choice experiments have been increasing in the various disciplines including the marketing, transportation, psychology, and environmental economics (Batsell and Louviere 1991; Louviere 1988; Boxall et al. 1996; Adamowicz et al. 1998; Hensher 1994; Mackenzie 1993; Mogas, Riera, and Bennett 2006; Haskell et al. 2010).

In Japan, there are a large number of seafood species available in different cuts or preparations. For this experiment, we selected the cut salmon fillet (salmon *kirimi*) as our product, since the pretest survey showed it was one of the most popular and commonly purchased seafood items for the consumers, and they are available throughout the year. The familiarity of the product is shown to be an important criteria when eliciting preferences in previous studies (e.g., Wessells, Donath, and Johnston 1999; Johnston et al. 2001).

Since the main objective of this study is to estimate the value of seafood ecolabels among Japanese consumers, the core attribute in the choice experiment is the ecolabel. We selected this attribute to be bivariate to reflect the common retail settings (with or without ecolabel). As the preceding focus group discussions revealed participants' low level of awareness and knowledge regarding ecolabels, we assume the similar level of knowledge among Japanese consumers in general. In order to facilitate the accurate, well-defined valuation, some basic information and several critical assumptions are presented to respondents before they answer choice experiments. First, respondents were presented with a basic description of seafood ecolabels, based on the literature such as Wessells et al. (2001) and FAO (2005), focusing on their definition of seafood ecolabel, third-party certification schemes, and how labeled products can be traded in the markets. Second, respondents were instructed to assume that certifications are done by the trusted organizations and monitoring for only qualified fishers using the label is perfectly executed. Third, respondents were also instructed to treat all other attributes, such as freshness, taste, and salmon species, as constant throughout the experiment.

We also included three other attributes that are important to consumers when choosing salmon products; country of origin, farmed/wild caught, and price. The country of origin attribute has four levels: Hokkaido, Alaska, Norway, and Chile. Hokkaido, a major salmon producing region in northern Japan, represents the "domestic" attribute. Alaska and Norway were included because their salmon products are frequently seen in supermarkets, and they may be associated with pristine environment and therefore somewhat considered as environmentally friendly; in fact, Alaskan salmon is MSC certified. Chilean salmon is also often seen in the market, and represents an average foreign origin attribute. The second attribute is whether the salmon is wild-caught or farmed. Japanese consumers in general have strong preference for wild-caught fish. Thus, an interesting question here would be how the effect of label fair with wild-caught salmon. Finally, the last attribute is the price tagged to each product with a certain

bundle of attributes. There are six levels starting from 275 yen up to 400 yen in 25 yen interval. For Chilean salmon, the range was adjusted downward starting from 200 yen up to 325 yen in 25 yen interval to reflect the actual average prices in supermarkets. Attributes and levels are summarized in Table 1.

Table 1. List of attributes and levels used in the choice experiment

Attribute	Origin	Raised	Label	Price (yen)
Level	Hokkaido (domestic) Alaska Norway Chile	Wild Farmed	Labeled Non-labeled	Other than Chile: 275, 300, 325, 350, 375, 400 Chile: 200, 225, 250, 275, 300, 325

Several other issues are considered designing the choice experiment. First, the use of the term "seafood ecolabel" might invoke confusion to Japanese consumers, as in the focus group sessions some expressed that the term "eco" made them think of water quality control, not the resource conservation. Thus, we changed the phrase to "seafood resource conservation label" and added an explanation on the concept of resource conservation. Second, at the time of the survey development, a new set of seafood eco-labels, Marine Eco Label Japan (MEL) was launched.[4] Although it might be appealing to compare several competing labels in a choice experiment setting, we concluded that it would be too confusing to respondents to be presented with multiple labels with slightly differing criteria, considering the likely low level of knowledge. Thus, we made a conscious choice not to relate our experiment to existing labels. Rather, we developed a hypothetical label that adheres to FAO's guideline. Third, the design of the choice experiment necessitated to define ecolabel applied to farmed fish. The ecolabeled farmed seafood was not available in the Japanese market at the time of the survey. Thus, in this study, we defined the ecolabel criteria on farmed seafood product as those which farming operation is managed such that animals and surrounding ecosystem are not harmed.[5] This information was communicated to respondents in the survey before they answer choice experiments.

The experimental design was created using SAS (Kuhfeld 2005) such that all the main and (non-price) two-way interactions are identified. The efficient design was selected based on the D-efficiency criterion, a standard method of quantifying the efficiency of an experimental design that yields a small variance matrix. To minimize the burden of making a large number of repeated choices, we blocked the design into six sets, each of which consists of eight choice occasions. Respondents are randomly assigned to one of the six blocks, and are presented with one choice set at a time in a random order to minimize any effects of learning or fatigue. In each choice set, respondents were asked to select one option out of three alternatives; two purchase options with different profiles, and option not to purchase.

DATA

The survey questionnaire was administered on-line by Nikkei Research Inc., a research consulting firm based in Tokyo. The survey was solicited to the firm's national online survey panel members. For the pretest that was conducted in February of 2009, we had 310 respondents out of 1,858 panel members being solicited. The actual survey was then conducted in March 2009, resulted in 3,370 usable responses out of 18,602 solicitations (18% response rate). The response rate was more than double compared to what was anticipated by the survey company; this may indicate potentially a great interest in this topic among the Japanese consumers.

Female respondents constitute 72% of the total; to be expected as the survey targeted the primary

shoppers.[6] Compared to the national averages, our sample has slightly fewer younger (20 to 24 years old) and slightly more of older (50 to 54 years old) respondents; fewer single households and more of households with three to four members; fewer low income and more high income households; and higher level of education. Geographic representation was comparable to that of national distribution.[7]

RESULTS

We follow the literature and use the random utility model as the foundation of our empirical model (e.g., Hanemann 1984; Louviere 2000). An indirect utility is assumed to have two parts: a deterministic component and a stochastic component. Empirical model will specify the deterministic component, and the logit model is obtained by assuming the stochastic component —the error term—is independently identically distributed type I extreme value (Train 2003).

Among the several logit models that one can choose from, we chose to use the mixed logit model (also known as random parameter logit model). There are several reasons for this decision. First, mixed logit model does not exhibit independence from irrelevant alternatives (IIA) or the restrictive substitution patterns of conventional logit models (Train 2003). Second, it allows heterogeneous preferences among the individuals. This is an important feature, since it is more plausible to assume that each Japanese consumer might have different preference for ecolabel as it is relatively new to them. Explanatory variables in our model include price and alternative specific attributes such as origin, wild or farmed, and ecolabel (Table 2).

Table 2. List of variables

Variable		Base case
Category	Description	
Origin	Hokkaido	
	Alaska	Chile
	Norway	
Wild or famed	Wild	Farmed
Ecolabel	Label	Non-labeled
Price	Price	
Alternative specific constant	For Buy alternative	No Buy alternative
Information	FAO	Minimal
	Science	information
Information perception	Credible	
	Exaggerated	
	Interesting	

Random parameters were origin variables, wild, ecolabel, ASC, and price variables. All but price variable assumed normal distribution. The distributional assumption for price variable required more considerations, as theoretically it should be non-positive (i.e., if the price increases the likelihood of an item being chosen to be purchased should decline). Lognormal distribution is the usual choice for a variable such as price, but there are several other alternatives. In this paper we present the results from four different distributions assumed for price variable: lognormal, Weibull, triangular, and beta. The latter three were modified to anchor the left-hand tail at zero (Hensher, Rose, and Greene 2005). Estimation results are shown in Table 3.

Table 3. Estimation results with varying distributional assumptions for PRICE variable coefficient

Variable	Distributional assumption for PRICE							
	Lognormal		Weibull		Triangular		Beta	
Core variables								
Buy	17.900	***	14.109	***	18.349	***	16.399	***
Hokkaido	3.467	***	3.270	***	4.378	***	3.545	***
Alaska	1.074	***	0.925	***	1.962	***	1.147	***
Norway	1.008	***	0.753	***	1.815	***	0.930	***
Wild	1.572	***	1.505	***	1.433	***	1.627	***
Label	3.087	***	2.391	***	2.323	***	2.681	***
Price	-0.032	***	-0.032	***	-0.037	***	-0.067	***
Information								
Label x FAO	-0.529	***	-0.371	***	-0.392	**	-0.383	**
Label x Science	-0.660	***	-0.637	***	-0.647	***	-0.672	***
Interaction terms								
Label x Hokkaido	-1.009	***	-0.681	***	-0.615	***	-0.827	***
Label x Alaska	-0.942	***	-0.563	***	-0.687	***	-0.633	***
Label x Norway	-0.763	***	-0.313	***	-0.183	*	-0.374	***
Label x Wild	-0.109		0.060		0.095	*	0.016	
Wild x Hokkaido	-0.355	***	-0.331	***	-0.185	***	-0.306	***
Wild x Alaska	-0.198	**	-0.195	***	-0.261	***	-0.239	***
Wild x Norway	-0.168	**	-0.137	*	-0.130	*	-0.127	
Label x FAO x Credible	0.918	***	0.743	***	0.726	***	0.807	***
Label x Science x Credible	0.835	***	0.858	***	0.796	***	0.751	***
Label x FAO x Exaggerate	-0.487	*	-0.516	**	-0.494	**	-0.493	*
Label x Science x Exaggerate	0.195		0.211		0.189		0.177	
Label x FAO x Interesting	0.763	***	0.604	***	0.578	***	0.669	***
Label x Science x Interesting	0.672	***	0.655	***	0.683	***	0.729	***
Diagonal values of Cholesky matrix								
Buy	14.578	***	8.299	***	9.857	***	9.659	***
Hokkaido	3.206	***	3.724	***	2.018	***	3.493	***
Alaska	1.105	***	1.174	***	0.058		0.933	***
Norway	0.203		0.253	***	0.121		0.173	
Wild	1.179	***	1.161	***	1.403	***	1.303	***
Label	1.474	***	0.313	*	1.629	***	0.716	***
Price	0.208	***	--		0.037	***	--	
Log likelihood	-14,658		-15,489		-15,783		-15,257	
McFadden Pseudo R^2	0.505		0.477		0.467		0.485	

Note: Random variables in italics. Significance levels are indicated by: *** (1%), ** (5%), and * (10%). Diagonal values of Cholesky matrix show statistical significance of randomness after incorporating the correlations among the random parameters.

All core variables have the expected signs and statistically significant. Hokkaido, Alaska, and Norway salmon products were more preferred than Chilean product, and in this order of magnitude. Thus, they also show that domestic salmon is most preferred among the origins in the choice set. Wild salmon is preferred over farmed salmon is also intuitive. The most encouraging result is that labeled products are strongly preferred over non-labeled products, which shows that in general Japanese consumers do exhibit

demand for labeled seafood. In terms of individual preference heterogeneity for these attributes, label variable was found to be statistically significantly heterogeneous across all models, which is what we expected given the consumers' unfamiliarity of the label.

Information treatment results show some interesting trends. Overall, FAO and Science information treatments attenuate the preference for ecolabeled products compared to the "minimal" information treatment, which had no information source attached to it (see appendix for details). It would be farfetched to conclude, however, that Japanese consumers do not trust organizations such as FAO or the journal Science. The fact that several incidents of labeling fraud were reported in national media news around the time of our survey might have had an impact on the consumers' trust on any authority body making claims about the products' attributes (e.g., domestically harvested, wild caught, etc). Flip side of this result is that information treatment—or campaign—need not be elaborative but rather keep it simple and concise. Indeed, for both FAO and Science treatments, when that information was perceived as "credible" or "interesting" they positively affected the likelihood of labeled products being chosen, while the converse is true when respondents perceived the information to be "exaggerating."

The primary interest of this study is the willingness to pay for the ecolabel, which is summarized in Table 4. Depending on the distributional assumptions regarding the price variable, the estimated WTP varies widely: from 40.1 yen (beta) to 95.6 yen (lognormal). Lognormal distribution has a thicker tail, which might explain the higher WTP estimate; given that the product price ranged from 200 to 400 yen, even 95.6 yen seems a bit on the high end. Beta distribution results are closest to what we had expected a priori, but its estimated distribution of WTP includes fair amount of implausible estimates—such as WTP of 1,000 yen or more—that casts doubt about the feasibility of beta distribution (see below).

Table 4. Willingness to pay estimates

	Lognormal	Weibull	Triangular	Beta
Label	95.6	74.8	62.5	40.1
Label x FAO	79.2	63.2	51.9	34.4
Label x Science	75.2	54.9	45.1	30.1
Label x FAO x Credible	107.7	86.4	71.4	46.5
Label x FAO x Exaggerated	61.1	47.1	38.6	27.0
Label x FAO x Interesting	102.9	82.1	67.5	44.4
Label x SCI x Credible	101.0	81.7	66.5	41.3
Label x SCI x Exaggerated	75.2	54.9	45.1	30.1
Label x SCI x Interesting	96.0	84.8	63.4	41.0

Mixed logit allows us to estimate the individual WTP for ecolabel. We estimated the conditional distribution, which incorporates the knowledge of which alternative is chosen, following Hensher, Rose, and Greene (2005) (Figure 1). Lognormal, triangular, and beta distributions all exhibit qualitatively similar pattern: while the mean WTP estimates were within the plausible range, the tails extend to 400 yen plus, and in the case beta distribution above 1,000 yen. Weibull distribution is more compact, ranging only up to 200 yen. An interesting feature for Weibull case is that it seems to have multiple peaks: around 30 yen, 80 yen, and 130 yen. This suggests that consumers might be grouped in to three categories for ecolabeled product marketing purpose, a topic of future research.
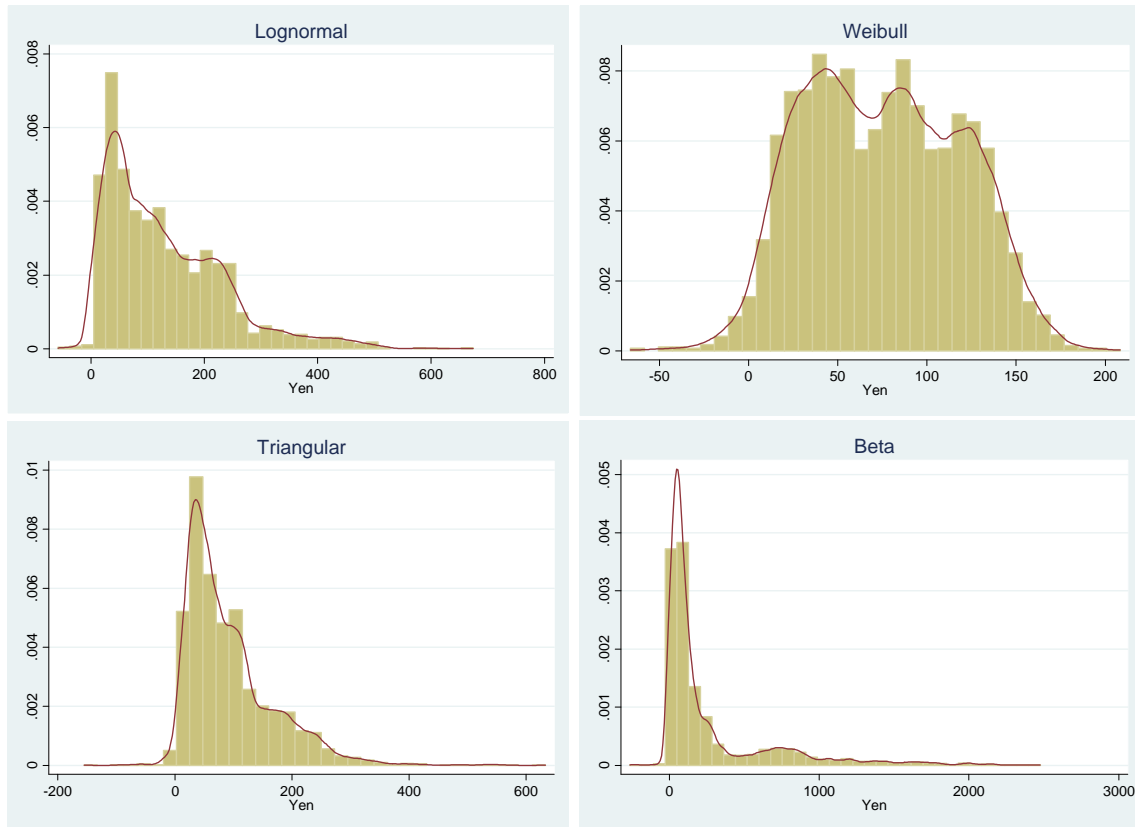
Figure 1. Distribution of ecolabel willingness to pay

CONCLUSION

To the best of our knowledge, this is the first study that rigorously estimated the willingness to pay for seafood ecolabel in the Japanese market. While the study on WTP for ecolabeled is not new, none was done for Japanese market. Given that Japan is the world's largest seafood importer and the country with the highest per capita seafood consumption, whether the consumers will demand for ecolabeled seafood products could have a significant implication on the grand scheme of ecolabeling as a tool to achieve sustainable fisheries. We used national-level online survey panels to conduct a conjoint choice experiment survey to estimate the Japanese consumers' WTP for ecolabeled seafood products.

Our results show that Japanese consumers exhibit demand for ecolabeled seafood with positive WTP for the labeled products, provided that they are properly informed. WTP range from 40.1 yen to 95.6 yen for the product costing between 200 and 400 yen. The impact information treatment was found to be significant, especially how it was perceived by the respondents. Our study suggests that information is best perceived if it is kept simple and concise, as both FAO and Science journal information attenuated the impact of information compared to the simple minimal information treatment.

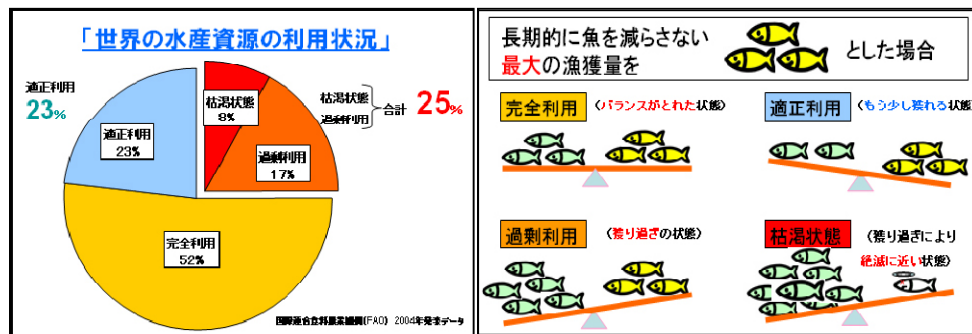**ACKNOWLEDGEMENT**

APPENDIX

1. Minimal information

"Natural fish stock is decreasing due to overfishing. Number of fish that used to be abundant around Japan, such as sardine, pollack, and mackerel, are decreasing and becoming less and less available for eating. Restriction of tuna fishing around the world is recently reported in news."

2. FAO information

"Natural fish stock is decreasing due to overfishing. Number of fish that used to be abundant around Japan, such as sardine, pollack, and mackerel, are decreasing and becoming less and less available for eating. Restriction of tuna fishing around the world is recently reported in news.
"According to a report published by FAO (UN Food and Agricultural Organization), one quarter of fish species are either overfished or endangered. About half the species are fully exploited, and only 23 percent is in a condition that can be fished more without reducing the stock."


* Both diagrams created by the authors.

3. Science information

"Natural fish stock is decreasing due to overfishing. Number of fish that used to be abundant around Japan, such as sardine, pollack, and mackerel, are decreasing and becoming less and less available for eating. Restriction of tuna fishing around the world is recently reported in news.
"Some experts suggested in the *Science* magazine that if the current overfishing continues, the natural stock of fish will be extinct and commercial fishery will collapse within 40 years."
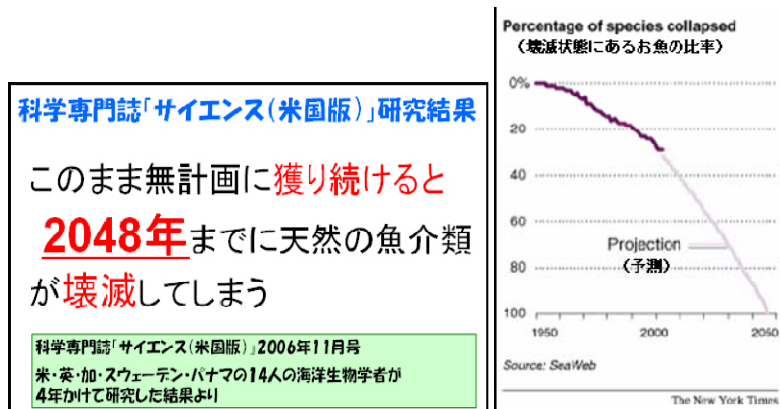
* The graph is taken from Dean (2006).

10

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[1] Part of the reason for this is because there are very few wholesalers and retailers who have Chain of Custody certification, thus many of the MSC certified fish that are imported cannot bear the label when they reach the hands of consumers. Some retailers began offering MSC labeled products, such as the Aeon retailer group and Food Co-op, but these efforts have so far been driven mostly from the sellers' side—as part of their public relations strategy—rather than the consumers' demand.

[2] The focus group sessions were titled "Survey on seafood purchasing" and targeted primary shoppers as participant. To facilitate the discussion we separated the two sessions by age; the first session participants were in their 40s and 50s, while those in the second session were in their 20s and 30s. There were eight participants in each session, and lasted for approximately two hours.

[3] This survey was conducted in March 2009, prior to the publication of the follow-up paper by Worm et al. (2009) in Science.

[4] The launch of the new domestic labeling scheme was in part resulted from a frustration of domestic fisheries towards MSC certification criteria where farmed fish, as well as restocking, common practices in Japanese fisheries, are not recognized.

[5] Currently, and certainly at the time of the survey, MSC label did not cover aquaculture, which is another reason why we chose to create a hypothetical seafood ecolabel.

[6] The solicitation for participants was not filtered. Rather, we first asked "who is the primary grocery shopper in your household," and only those who answered "myself" were allowed to enter the survey pages.

[7] National averages are from Ministry of Internal Affairs and Communications (2010a; 2010b; 2010c).