



Aquatic product consumption patterns and perceptions among the Chinese middle class



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HIGHLIGHTS

- Present results of a survey of 300 middle-class urban consumers of aquatic products in Beijing and Shanghai.
- We asked about seafood consumption patterns and attitudes towards sustainability.
- Results indicate limited levels of awareness on a range of issues to with sustainability.
- Education level was closely correlated with support for Marine Stewardship Council concepts and environmental advertisements.

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ABSTRACT

The Chinese market for aquatic products is the largest in the world, and growing rapidly. An increasingly large proportion of Chinese aquatic product consumption is coming from imported sources, making the market of high significance not only for stakeholders in China, but from around the world. Yet little is understood about the key characteristics of this market. In this paper we surveyed 300 middle-class urban consumers of aquatic products in Beijing and Shanghai about patterns of aquatic product consumption and attitudes towards sustainability. We asked about the major types of aquatic products consumed, the forms of aquatic products consumed, the different types of venues aquatic products are consumed in, the purchasing location of aquatic products, and the different types of motivation behind aquatic product consumption. We also examined awareness of and attitudes towards a range of public awareness campaigns on environmentalism, understandings of the endangered status of different types of aquatic products, and attitudes towards a range of topics related to sustainability and consumption. Our results indicate limited levels of awareness on a range of issues to do with sustainability among urban middle-class Chinese consumers. Education level was closely correlated with support for Marine Stewardship Council concepts and environmental advertisements. Our results highlight some of the opportunities and challenges faced by both government and market actors in improving sustainability in the Chinese consumer market.

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1. Introduction

The Chinese market for aquatic products is the largest in the world, and growing rapidly. Driven by urbanization and higher incomes, consumers are demanding a wider variety of aquatic

products—a process linked to the ‘nutrition transition’ across many parts of the developing world, whereby consumers shift from a predominantly carbohydrate and vegetarian based diet to one incorporating greater levels of animal products (Zhou et al., 2012; Popkin, 2014; Zhai et al., 2014). An increasingly large proportion of Chinese aquatic product consumption is coming from imported sources, making the market of high significance not only for stakeholders in China, but from around the world. For fisheries managers in source countries, the Chinese market is therefore of particular importance, both because of its sheer size (Villasante et al., 2013), and also because it is the leading market of specific

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types of aquatic products that are unsustainably fished—shark fin, sea cucumbers, and live reef food fish, among others (Fabinyi and Liu, 2014a; Purcell, 2014; Eriksson and Clarke, 2015).

The significance of this market for environmental sustainability has driven a range of initiatives in recent years attempting to promote more sustainable forms of consumption in China. For example, environmentalist groups have worked with celebrities such as ex National Basketball Association player Yao Ming and actor Jackie Chan to campaign against the consumption of shark fin soup and other endangered species of wildlife. Organizations that promote certification such as the Marine Stewardship Council and Friend of the Sea are also increasingly active. The government has also been active on a number of related issues related to aquatic product consumption, including measures designed to promote food safety and traceability of aquatic products, banning the consumption of shark fin soup, and engagement with international trade regimes such as that of the Convention of International Trade in Endangered Species of Flora and Fauna (CITES) (Fabinyi and Liu, 2014b).

However, surprisingly little is known about the details of Chinese aquatic product consumption preferences. The most commonly used measures of food consumption, the food balance sheets maintained by the Food and Agriculture Organization of the United Nations (FAO), are large-scale, coarse-grained datasets that provide very little data at a disaggregated scale. Chinese government statistics on consumption published in the national statistical yearbooks have considerably more detail, but do not take into account out of home consumption (Chiu et al., 2013), nor do they focus in detail on particular types of aquatic products that are consumed. Market research reports conducted for major seafood industry publications such as *Seafoodsource* and *Intrafish* are available but usually only at prohibitive prices, while statistics for major Chinese industry associations, such as the Chinese Aquatic Products and Processing Marketing Alliance, are also not easily accessible. Gaining a better understanding of Chinese consumers is therefore crucial for fisheries managers and policymakers in China and globally.

In this paper we provide results from a survey of 300 middle-class aquatic product consumers in Beijing and Shanghai. After a discussion of methods, the first section highlights the major types of seafood products consumed, the forms (i.e. live or frozen) of seafood consumed, the different types of venues seafood is consumed in, the purchasing location of seafood products, and the different types of motivation behind seafood consumption. The second section then shifts to examine issues related to sustainability: it examines awareness of and attitudes towards a range of public awareness campaigns on environmentalism, understandings of the endangered status of different types of seafood, and attitudes towards a range of topics related to sustainability and consumption.

Descriptively, the goal therefore is to present new information on an aquatic product market that is of crucial importance for fishery managers and policymakers. Conceptually, the paper also aims to contribute to the debates surrounding sustainable consumption, and the respective roles of the state, the market and certification in this process (Isenhour, 2011; Bush et al., 2013). We highlight how the distinctive Chinese context presents particular challenges for the role of sustainable certification.

2. Methods

2.1. Sampling

This research was approved by the Human Research Ethics Committee of James Cook University (Human Ethics Approval Number H4513).

We used a standardized questionnaire through the online survey system SOJUMP (www.sojump.com). 300 valid samples were obtained between January 13 through to March 18 2015 using a quota sampling method, where gender, age and socio-economic status were used as dimensions for quota stratification. Age was stratified into three sub-groups 18–35, 36–50, and 51–60. Socio-economic status was simplified into a status combination made up of both educational level and income, where subjects having a bachelor's degree or above and an average monthly salary of CNY10,000 or above are defined as high status, those having a bachelor's degree or above, or having an average monthly salary of CNY10,000 or above were defined as medium status, and those having an education lower than bachelor's degree and an average monthly salary below CNY10,000 were defined as lower status. Ratios of males to females were set at 1:1, higher to lower socio-economic status were 1:1:1, and because of the age differences between the three age groups, the quota ratio of the three age groups were set at 2.2:1.8:1. Due to some degree of difficulty recruiting higher socio-economic status participants, the actual sample structure in Beijing (146 samples) and Shanghai (154 samples) were as listed in Table 1. A 2×3 Chi square analysis confirms the significantly lower number of older respondents ($P.024$). Overall, this sample represents a population with a relatively low level of income, a high education level and a relatively young age. This corresponds to one commonly used definition of an emerging middle class in China (Goodman, 2014).

2.2. Seafood consumption patterns and motivations

We asked about the amount of spending on aquatic products in 2014, and about the importance of aquatic products relative to other food groups. To examine consumption patterns on specific aquatic products, we asked questions on 19 marine and 14 freshwater products. These products were selected on the basis that they were either commonly consumed (e.g. carps) or of particular interest to the research team (e.g. shark fin), and were classified according to common Chinese classifications (not scientific names or FAO product codes). They do not cover the diversity of all types of aquatic products consumed. We asked whether respondents had eaten a particular product, and if so how, many times per year they ate it. We then asked about the usual forms in which these products were eaten, the venues they were usually consumed, and the purchasing location they were usually bought in. We then asked about different motivations for seafood consumption at different venues.

2.3. Sustainability

We asked whether respondents had heard of several environmental advertisements. We asked about awareness or perceptions of endangered species status for a range of seafood products, and about the level of awareness of seafood products on the national list of protected species. In order to understand attitudes towards a range of issues to do with sustainability, we also used five-point Likert scales to measure respondents' levels of agreement with nine statements about sustainability.

3. Results and discussion

3.1. Consumption patterns and motivations

3.1.1. Consumption of different seafood products in Beijing and Shanghai

By city where samples are located, the average amount of money spent on seafood consumption in Shanghai (CNY4227) is

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