

Attitudes towards utilizing the oceans in contemporary Chinese society

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Impact Paragraph: a reflection on the scientific and societal impact of this dissertation

A personal perspective on this dissertation

As a person who grows up in a coastal city in China, the connection between the oceans and human society has always been fascinating me. When I was young, sitting on the beach and watching people surf on the waves, kids play with sand, tourists enjoy the sunshine, and fishermen drive their boats were a big part of my daily life routine. In my naive understanding, the marine environment is always beautiful and tranquil, and how humans make use of the oceans always stays in a harmonized and rational way. As time goes by, nevertheless, it becomes increasingly clear to me that how human utilize the oceans are not always harmonized and sustainable. Starting from 2008 summer, the coasts of my hometown city Qingdao suffered from the explosive growth of enteromorpha algae for several years. In the summer of 2011, a large-scale marine oil spill event, the Penglai-193 Oil Spill, occurred in my home province and caused huge impacts on the local economy and marine ecosystem. After that, The Fukushima Disaster happened in our neighbor country Japan and led to a panic spreading through almost the whole Chinese society concerning the polluted seawater reaching Chinese coasts. The panic atmosphere even triggered some salt-scrambling incidents in many Chinese cities. All the disasters give rise to a question in my mind: if current ocean use is not sustainable, how do people perceive their ways of using the oceans?

To me, this dissertation serves as my scientific endeavoring to answer the aforementioned question which has confused me for a long time. Especially at present, human society, regardless of whether in Global North or Global South countries, has been confronted with multiple sustainability challenges in the oceans, such as ocean acidification, marine resource depletion, marine biodiversity loss, and so on. How to co-exist with and sustainably use the oceans is vital to safeguarding the ocean environment and protecting ocean resources as well as critical to the living conditions of our future generations. Therefore, in this research, I, together with my research team at Maastricht University, want to explore how people in coastal Chinese society understand their uses of the oceans, including the use of marine life and offshore oil and gas drilling. By examining how coastal Chinese residents perceive their utilization of different marine resources, I intend to gain some insights into achieving sustainable use of the oceans. During this research journey, our research team has obtained abundant interesting outcomes regarding coastal Chinese attitudes' towards ocean use. These findings are not only insightful for the academic world to understand sustainable human use of the oceans under current global challenges of sustainability but also beneficial for various actors in societal and political domains to carry out decision-making and policy formulation.

Contribution and relevance to the scientific community

In this dissertation, we employed four chapters to describe how coastal Chinese perceive their uses of the oceans, including marine life and offshore oil and gas resources, and associate these public attitudes with different demographical and behavioral factors. We also delved into ancient Chinese society and traditional Chinese culture to look for the origins of such public attitudes. Findings from this research can contribute to the scientific community mainly through these four aspects. The first one is our research fills in the knowledge gap of how people perceive their uses of the oceans in contemporary Chinese society. For a long time, how individuals in Global South countries, especially emerging economies like China, recognize their utilization of ocean resources remain to be ambiguous. To the best of our knowledge, our research is the first study which ever investigated the public attitudes towards marine life and offshore oil and gas drilling in China in the academic world. With this research, comparisons from both horizontal (different nations) and vertical (different time periods) perspectives are facilitated. The second contribution is our research discovered several correlations between attitudes towards ocean use (marine life and offshore oil and gas) and social mental factors, including basic human demographics, moral ideology, and core environmental values. After telling a story of how coastal Chinese understand the uses of marine life and offshore oil and gas resources, this study further examined the influential variables of these attitudes, based on existing literature of animal and environmental studies. These predictors and correlations add value to the academic world by both enlightening future research directions on attitudes towards ocean use and testing if the associations discovered in earlier studies are also applicable to China. Another contribution lies in the unique roles of social and cultural contexts in understanding public perception of marine life and offshore oil and gas drilling in Chinese society. The present research uncovered that Chinese people's perceptions are deeply rooted in the thousands of years of agriculture-based ancient society and Confucianism-centered traditional culture. Without fully grasping the social contexts of Chinese society, it will be difficult to understand why coastal Chinese hold certain attitudes. The last contribution is our research can provide insights on how to achieve sustainable human use of the oceans, particularly under the background of increasing sustainability challenges all over the world. Human attitudes usually influence human behavior. A better understanding of human attitudes towards ocean use will help social scientists pinpoint the causes of unsustainable behavior and promote the discussion of sustainable human use of the oceans in the scientific community.

Contribution and relevance to the societal and political actors

Apart from scientific contributions and relevance, findings from this research also carry considerable moral and practical implications for societal and political actors to act in different policy domains. First and foremost, stakeholders involved in the arena of marine environment protection can find useful arguments in this dissertation. Our research results indicate that citizens in coastal Chinese society are largely aware of the significance of ocean conservation and "the greater good" may act as an ideal strategy to promote sustainable use of the oceans.

It is expected that raising public awareness will not be the focus of marine conservation efforts and the interests of the majority will be stressed in different ocean protection policies. Following that, some outcomes of this research can be constructive for decision making in marine fishing development and the fishery industry. This research observed coastal Chinese, in general, hold positive attitudes towards marine life protection but also feel relatively tolerable for consuming fishery products and using them in medical research. The development of the marine fishery industry in Chinese society is justified while still confronted with huge sustainability challenges ahead, such as the loss of marine biodiversity and fishery resource depletion. The key is to find the balance between human needs and marine fishery resource protection. On the one hand, policy making on fishery development is supposed to meet the increasing market needs in coastal Chinese society. On the other hand, policy formulation on fishery development should also facilitate and accelerate the transition to sustainable fishing in China. In addition, our research on public attitudes towards offshore oil and gas drilling is of great importance to the oil industry, oil and gas companies and organizations, and political actors related to offshore drilling in coastal Chinese society. Findings from our research have illustrated that coastal residents have low support, high risk-perception, and moderate trust in offshore oil and gas drilling in China. Although some of their perceptions on offshore drilling may not be valid or correct, political actors ought to take these perceptions into consideration when formulating offshore drilling policies. Questions like where to drill, how to operate, who can participate, and what are the risk responding plans should be addressed carefully.

Besides the direct links to decision-making in marine fishing and offshore oil and gas drilling, several indirect links can also be constructed from our research outcomes to policy making in the following three domains. Animal protection and animal welfare are the first indirect connection. For a long time, animal welfare and animal protection are not a firmly developed policy area in China. This is partly due to the reason that scarce knowledge is available regarding how individuals view their relationships with animals in contemporary Chinese society. Although not specifically pointing to animal welfare, our research outcomes still bring fair indications for political actors working in animal protection and animal welfare in coastal Chinese society. These results can help them not only better understand how Chinese people recognize animal protection, but also strategize their efforts in different policy advice on animal welfare. Coastal energy development is another area which subtly linked to our discoveries. Earlier studies have already illustrated the not-in-my-back-yard mentality show up in different coastal energy projects in China, including wind power, incineration power, and nuclear power. Findings from our research complete the missing link of oil and gas drilling in this public perception. Even though these results are offshore oil and gas related, they reflect the basic energy values of the public in coastal Chinese society. Furthermore, as we discovered the high-risk perception and moderate trust in drilling claims among individuals, various stakeholders, such as governments, the energy industry, environmental groups, etc. can extract useful information to themselves from these findings and work on corresponding countermeasures. Last but not least, our results also provide insights for decision making in the political arena of

marine spatial planning. Since we predicted some influential factors of public attitudes towards marine life and offshore oil and gas drilling, political actors engaged in marine spatial planning can take advantage of these results to decide on the sites for different purposes and design the layout of different coastal industries and manage, like fishing, drilling, tourism, etc. For instance, as coastal citizens feel relatively acceptable with using marine life in scientific research, the siting of marine research institutes can be closer to the residential areas.

Disseminating knowledge to create social impacts

During the past years, I have also actively participated in a series of academic activities, to draw attention to my Ph.D. project and research outcomes in the scientific community. Sometimes, as constrained by time and budget, I was not able to further increase the influence of my research findings or connect with other researchers. Especially, the Covid-19 pandemic swept the whole world since early 2020, which caused the cancellation of many scientific activities and limited the possibility of academic networking in the past three years. But I was fortunate enough to take part in several academic activities and network with some members in the scientific community. In the 2019 summer, I applied and get accepted by the 2019 European Summer School “Interspecies Relationality” (ESSIR) in Kassel, Germany. In 2020 spring I participated the Erasmus+ staff mobility program and did a short academic visit at Leuphana University of Lüneburg, Germany. In 2021 summer I joined the 2021 People & the Sea Conference (MARE 2021) virtually. In these academic activities, I presented my articles, received valuable feedback, built connections with researchers working on similar topics, and even discussed about potential collaborations in research projects in the future. In addition to the academic activities, dissemination to the scientific community has taken place through 3 journal publications (see publication list), the 4th is in preparation for submission. For future research and dissemination, I would like to encourage more research projects into human attitudes towards ocean use, especially different types of marine resources or different forms of marine pollution. And I also encourage more researchers, institutes, organizations, and stakeholders to attach importance to this research area. Only when we fully understand human attitudes towards their use of the oceans, can we deal with current sustainability challenges and achieve sustainable use of the oceans.