

2021

Qingdao Marine Conservation Society Annual Report

CONTENTS

1. Foreword: riding the wave, turning the tide

2. About Us

3. Honors, Strategic Partnerships and International Exchange

4. Steering Sustainable Development of Fisheries and Aquaculture

5. Supporting Conservation of Critical Coastal & Marine Habitats and Species

6. Promoting Sustainable Seafood Consumption and Public Education

7. Building Our Capacity

8. Epilogue

9. Our team and Contact

Annex : Acknowledgements

1. Foreword: riding the wave, turning the tide

This decade is crucial to halting the decline in the ocean's health. The need for action and investments on marine-related issues has never been more urgent. In the midst of the COVID-19 Pandemic, marine conservation faces various challenges that are likely to continue in the years to come.

Even so, opportunities are still opening up before us. Ambitions and commitment articulated in recent policy planning and innovative collaborations among local and international stakeholders, can greatly help amplify conservation impacts and realize transformational achievements.

For Qingdao Marine Conservation Society (hereinafter referred to as "QMCS"), 2021 is a year full of growth, collaboration and exploration. We hope that through this annual report, all those who support and encourage QMCS will have a better understanding of our organization and what we do. Whether you are civil servants, fellow NGO practitioners, students and researchers from the academic community or seafood lovers, you are welcome to join us in protecting our blue planet through collective efforts. We look forward to creating new chapters of marine conservation together with you.

An exciting future lies ahead !

2. About Us

Founded in 2017, QMCS is a non-profit organization focusing on conservation of marine ecosystems and sustainable development of fisheries. Tapping into our strengths and resources, we have been carrying out dozens of projects across China in the fields of seafood sustainability and marine conservation. Through scientific research, public education, talent cultivation and international exchange, QMCS continuously contributes to sustainable development of fisheries, conservation of marine ecosystems as well as sustainable seafood consumption. Until February 2022, 37 original articles have been published on our WeChat account, including 30 popular science articles, with a total reading of over 300,000 on various platforms.

Our Vision

Healthy seas and oceans provide seafood security for people and a home for a rich diversity of marine life.

Our Mission

To promote the conservation of coastal & marine ecosystems and drive the sustainable seafood movement through scientific research, public and industry education, and international exchange of knowledge and experience.

Our Three Core Working Areas

- ❑ Steering Sustainable Development of Fisheries and Aquaculture
- ❑ Supporting Conservation of Critical Coastal & Marine Habitats and Species
- ❑ Promoting Sustainable Seafood Consumption

3. Honors, Strategic Partnerships and International Exchange

Over the past year, as a member of the Global Seafood Rating Alliance (GSRA), we have been progressively deepening our work on sustainable fisheries and marine ecosystem conservation. Through active participation in the exchanges with both domestic and international fellow NGOs, our voice has been heard.

2021 Conservation And Environmental Grants, Ford China

Having stood out from 120+ organizations, QMCS has been selected as one of the 11 winners of the 2021 Conservation And Environmental Grants, Ford China! The positive comment from the judges' panel reads: "Combining cutting-edge conceptions with local reality, via science & evidence-based theories and methods, QMCS promotes marine ecosystem conservation and sustainable fisheries, exploring a new path for the participation of environmental NGOs in marine governance."

Pew Fellows Program in Marine Conservation

QMCS Founder Songlin Wang has been selected as a Pew Marine Fellow, leading QMCS's work aiming at protecting China's largest eelgrass bed, and in the meantime, exploring a pathway of more sustainable livelihoods for small-scale fishing communities depending on this habitat.

Member of the Conservation Alliance for Seafood Solutions (CASS) Alliance Board

QMCS is currently a member of CASS and Songlin has been elected as a member of the Alliance Board.

3. Honors, Strategic Partnerships and International Exchange

Member of the World Economic Forum Friends of Ocean Action (WEF-FOA)

Songlin joined the WEF-FOA in 2021. Through participating in roundtables, QMCS engages in in-depth exchanges with domestic and international peers on issues related to ocean conservation.

NGO Tuna Forum (NTF)

Following our admittance to the NTF in 2020, we have provided the Chinese version of three important documents of the Global Tuna Alliance: the 2025 Pledge towards Sustainable Tuna, Tuna 2020 Traceability Declaration Traceability Toolkit and Tuna 2020 Traceability Declaration Environmental Sustainability Toolkit, contributing to the sustainable fisheries of tuna globally.

Core Partner with Ocean Outcomes (O2)

Since its foundation, QMCS has become a core partner with O2. Having shared a similar vision and mission as well as having fostered the climate of mutual trust, QMCS and O2 have been working together over the years in implementing a number of Fishery Improvement Projects (FIPs) and conducting studies with potential to instruct China's on-going fisheries management reform.



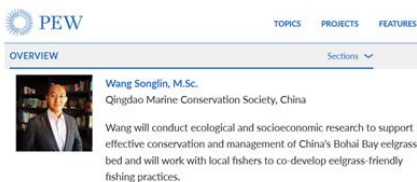
GLOBAL SEAFOOD RATINGS ALLIANCE



Alliance Board



OCEAN OUTCOMES



4. Steering Sustainable Development of Fisheries and Aquaculture

Through years of work and experience in the sustainable development of fisheries and aquaculture, we continue conducting FIPs and AIPs in depth. Furthermore, QMCS has also enhanced its participation in the international conservation community and brought its contributions through international exchanges. QMCS's insights and core competencies in this domain have increasingly gained recognition from near and afar.

The Fujian Zhangzhou Red Swimming Crab Fishery Improvement Project

The Fujian Zhangzhou Red Swimming Crab Fishery Improvement Project is the first collaborative, comprehensive fishery improvement project between national associations of aquatic products from China and the United States. Multiple stakeholders have been involved, including China Aquatic Products Processing and Marketing Alliance (CAPPMA), Zhangzhou Aquatic Products Processing and Marketing Alliance (ZAPPMA), the US-based National Fisheries Institute Crab Council, Ocean Outcomes, Tao Ran (TR) and QMCS. The project strives to assist the local government in improving the management of fisheries resources and the conservation of marine ecosystems of Minnan-Taiwan Bank Fishing Grounds, and facilitate the sustainable crab trade between two countries.

Since its inception in 2018, we have made solid progress. We continued to work with researchers from Xiamen University to collect data, conduct dockside monitoring of crab resources, assess the impact on fisheries, and explore improvement strategies.



Dockside monitoring and survey
©QMCS

4. Steering Sustainable Development of Fisheries and Aquaculture

Two research articles were published in the international journals *Fisheries Research* and *Frontiers in Marine Science*^{*}, raising the project's international renown. The project has allowed us to build and share our knowledge and experience through participating in international exchange such as the International Crustacean Fisheries Task Force. Together with our counterparts from Indonesia, the United States, the Philippines and other countries, we endeavor to explore effective pathways to sustainable management of crab resources.

* (1) Boenish, R., Lin, B., Kritzer, J. P., Wilberg, M. J., Shen, C., Jiang, Y. and Liu, M. (2021). A bioeconomic approach towards improved fishery management of *Monomia haanii* in the southern Taiwan Strait, China. *Fisheries Research*. Elsevier BV, 240, p. 105969. doi: 10.1016/j.fishres.2021.105969.

(2) Lin, Baian & Jiang, Yan & Boenish, Robert & Xu, Qing & Liu, Min. (2021). Population, Reproductive and Fishery Dynamics of Spotted Box Crab (*Calappa philargius*), a New Claw-Only Fishery Species, in the Southern Taiwan Strait, China. *Frontiers in Marine Science*. 10.3389/fmars.2021.751790.

Pilot-testing Total Allowable Catch

In partnership with the Natural Resources Defense Council (NRDC), Environmental Defense Fund (EDF), QMCS has given full play to its strengths of field research to move forward with the joint research project to demonstrate the effectiveness of Total Allowable Catch (TAC) in China's domestic fisheries management.

The co-authored research report, *Progress of China's TAC system: Evaluation Report for Zhejiang and Fujian Pilots*, was jointly released in August and submitted to the Bureau of Fisheries of the Ministry of Agriculture and Rural Affairs, winning acclaim from competent authorities and others.



4. Steering Sustainable Development of Fisheries and Aquaculture



International Workshop on Electronic Reporting and Monitoring of Fisheries Production

© the Zhejiang Marine Fisheries Research Institute

In October, the project team supported the Zhejiang Marine Fisheries Research Institute to successfully host the International Workshop on Electronic Reporting and Monitoring of Fisheries Production in Zhoushan, Zhejiang Province.

Domestic and foreign experts from Zhejiang, Guangdong, Shanghai, the United States, New Zealand, Japan, Europe and South Korea shared their insights and cutting-edge information. More than 100 participants attended either online or in person, helping facilitate exchange of expertise on TAC across countries and regions.

Field research and interviews in the fisheries and aquaculture industries

Last year, QMCS conducted a variety of field research regarding environmental performances of China's major or representative fisheries and aquaculture operations. Through these research work, we have kept deepening our understanding of the sustainable development needs of China's seafood industry and where certification and ecolabel schemes such as the ASC can make a difference.



Interviews with fishing community stakeholders

©QMCS

4. Steering Sustainable Development of Fisheries and Aquaculture

Supported by the SEE Foundation and partnered with Spoon-billed Sandpiper in China and the team of Professor Xiaoshou Liu from Ocean University of China, we launched the project “Exploration on Sustainable Development of Coastal Wetlands Subsistence Fisheries” in Jiangsu Province in December.

The on-going field research enables us to assess the environmental performance of fisheries activities and fisheries resources in these key habitats of many marine species. Based on science evidence and local practice, this work will further help us formulate waterfowl-friendly fishery improvement plans.



The field research in coastal wetlands in Jiangsu
©QMCS

Besides, thanks to sponsorship from WWF and OPF, QMCS successfully carried out field research and sustainability assessment of fishery and aquaculture in Luannan coastal wetlands in Hebei Province and Chongming Island in Shanghai. Since waterfowl and seabirds are the major conservation targets in these areas, the field work and sustainability assessment aim to explore a sustainable development model for small-scale fisheries and aquaculture that is “eco-friendly and socially responsible”.



The field research in Luannan coastal wetlands
©QMCS



The field research in Chongming Island
©QMCS

4. Steering Sustainable Development of Fisheries and Aquaculture

Exchange with fellow NGOs

Ecosystems are inextricably interconnected. Sustainable development of fisheries and conservation of biodiversity go hand-in-hand. QMCS has been actively engaging with fellow non-profit organizations. For example, we took part in the workshop organized by Conservation Network for Dalmatian Pelicans (*Pelecanus crispus*), discussing with bird experts on potential threats posed by fishing activities to Dalmatian Pelicans.



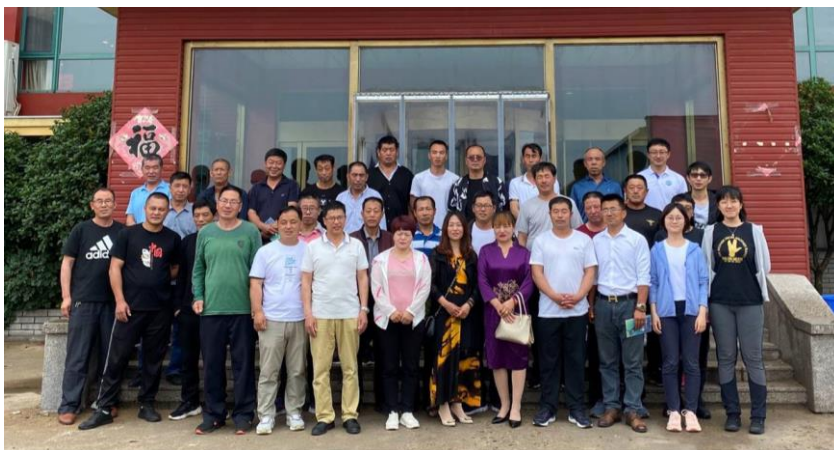
Fang Lu, QMCS Sustainable Fishery Lead, participated in the workshop organized by Conservation Network for Dalmatian Pelicans
© Conservation Network for Dalmatian Pelicans

5. Supporting Conservation of Critical Coastal & Marine Habitats and Species

In this domain, QMCS launched two new projects in 2021: **Stewarding Coastal Community-conserved Areas and Promoting Sustainable Fisheries in Langya Township, Qingdao Municipality** and **Exploration on Fishing Community's participatory Management Approach for Da-Shen-Tang Oyster Reef Conservation**. These projects on exploring fishing communities' participatory management allow us to dive deep into the promotion of coastal community-conserved areas and the capacity building for fishing communities, as well as to create replicable examples of coastal community-conserved areas. Beyond that, the projects related to the conservation of other endangered, threatened, protected (ETP) species and the restoration of critical habitats have been running smoothly, making major breakthroughs at the current stage.

Stewarding Coastal Community-conserved Areas and Promoting Sustainable Fisheries in Langya Township, Qingdao Municipality

Having been secured by the Small Grants Project of Global Environmental Facility under the United Nations Development Programme in China, QMCS kicked off in April the project "Stewarding Coastal Community-conserved Areas and Promoting Sustainable Fisheries in Langya Township, Qingdao Municipality."



The first training session for fishers
©Blue Bay Guardians

5. Supporting Conservation of Critical Coastal & Marine Habitats and Species

Through cooperation with the Blue Bay Guardians, a grassroots association founded by local fishers, QMCS plans to provide fishing communities with training sessions, enhance the management of volunteer guardians, recruit new fisher members, collect information on local fishery resources, as well as record and disseminate local fishing culture and ecological knowledge. Since the launch of the project, the team has conducted a couple of catch analyses and organized one training session on the theme of sustainable fisheries.

Exploration on Fishing Community's Participatory Management Approach for Da-Shen-Tang Oyster Reef Conservation

Supported by Friends of Nature, QMCS launched the project "Exploration on Fishing Community's Participatory Management Approach for Da-Shen-Tang Oyster Reef Conservation" in September. The project aims to work with local fishers to understand the threats that fisheries pose to oyster reefs, explore and promote oyster reef-friendly fishing methods.

Through the participatory management approach, the project is committed to encouraging local small-scale fishers to gradually become stewards and even co-managers of oyster reefs. The team has set about collecting and sorting out information related to oyster reef conservation and sustainable fisheries in the run-up to future field research.



Da-Shen-Tang oyster reef
© QMCS

5. Supporting Conservation of Critical Coastal & Marine Habitats and Species

Research and Conservation of Seahorses and Their Habitats

QMCS successfully concluded the first phase of the project "Research and Conservation of Seahorses and Their Habitats" and received second-year funding from the Zhilan Foundation. The project team kept on investigating and evaluating the seahorse bycatch situation. In light of these rich findings, a research report was produced and two thematic seminars were held in Qingdao and Xiamen.



Dockside investigation of seahorse trade
© QMCS



Bycatch of three-spot seahorses
(*Hippocampus trimaculatus*)
© QMCS

The project team also built a rapport with provincial and municipal fishery authorities to share research findings and proposed science-based policy and management recommendations. Fang Lu, the project lead, was invited to share experience in seahorse protection at the TEDxOUC event "Ocean Needs Heroes".



Fang Lu spoke at the TEDxOUC event
"Ocean Needs Heroes"
© TEDxOUC

5. Supporting Conservation of Critical Coastal & Marine Habitats and Species

Conservation of Bohai Bay Eelgrass Bed and Exploration of Subsistence Fishing Community Co-management

The project aims to promote eelgrass bed conservation in Bohai Bay, to design and implement an innovative participatory management pattern for fishing communities. Many outputs were achieved. Through close collaboration with representatives of small-scale fishers and scientific researchers, the project team completed a preliminary survey report on the fishery resources and the socio-economic status of fishing communities in Bohai Bay.



Hand drawn eelgrass bed
©Secretary-General Yuqiang LI, QMCS

QMCS has been taking advantage of various occasions to share the project with the public. The production of a science education video on the topic of seagrass bed conservation is on the way.



Songlin spoke at the Global Biodiversity Festival, an event led by IUCN.
©QMCS

6. Promoting Sustainable Seafood Consumption and Public Education

As one of our three core working areas, QMCS is continuously committed to educating the public and advocating sustainable consumption of aquatic products based upon scientific research. Until February 2022, 37 original articles have been published on our WeChat account, including 30 popular science articles, with a total reading of over 300,000 on various platforms.

Meanwhile, we have been actively carrying out ocean-related science education. We organized and were invited to educate the public through diverse online and offline events, arousing strong interest and enthusiasm of the audience. We look forward to more opportunities to popularize science education for the new generation and to foster public awareness of marine conservation and sustainable seafood consumption.

China Sustainable Seafood Assessment (CSSA)

Initiated in 2019, our flagship project CSSA has been widely recognized for its scientific rigor and credibility. Backed by high-quality assessment reports and popular science articles, CSSA strives to guide mass Chinese seafood consumers to choose sustainable and environment-friendly aquatic products.



CSSA recommendations on aquatic products
© QMCS

6. Promoting Sustainable Seafood Consumption and Public Education

Public Education

QMCS made contributions to a wide variety of public education activities, which span across regions. For instance, Songlin delivered lectures at Qingdao Jinjialing Primary School and at the event of "Lokatse Speaks". He also joined the panel discussion of China Environmental Grantmakers Alliance 10th Salon "Saving the Ocean in Crisis" and discussed with international counterparts the combat against illegal, unreported and unregulated fishery products at the **Tokyo Sustainable Seafood Symposium**, hosted by our Japanese partner **Seafood Legacy**. QMCS team members were invited to speak at Qingdao "Growing Up Together" Jincao Carnival, a webinar organized by Guangxi Biodiversity Conservation and Research Center, Blue Opportunities and Challenges Forum, etc.



Lecture at Qingdao Jinjialing Primary School
©QMCS



Discussion at the Tokyo Sustainable Seafood Symposium
©QMCS



Lecture at Qingdao "Growing Up Together" Jincao Carnival
©QMCS



Lecture at the event of "Lokatse Speaks"
©QMCS

6. Promoting Sustainable Seafood Consumption and Public Education

Public Education Program for the Middle School Affiliated to Qingdao University

During the spring semester, we continued to carry out the second half of the Public Education Program for the Middle School Affiliated to Qingdao University with elective courses, a lecture and an intertidal field trip. Blending theory and practice, this program allowed students to intuitively understand marine biodiversity and the international sustainable seafood movement.



Lecture for the Middle School Affiliated to Qingdao University
©QMCS

Citizen Science Education Program



Students actively participated in intertidal biodiversity observation.
©QMCS

QMCS has been making constant efforts to create opportunities for the public to engage in science and immerse themselves in nature. Through the Citizen Science Education Program supported by One Planet Foundation, citizens in Qingdao can have the occasion to join our field work.

By working with researchers and professionals, this experience has not only enhanced their knowledge of coastal biodiversity in their home city, but also enabled them to contribute to building a scientific database for supporting Qingdao's coastal biodiversity conservation.

7. Building Our Capacity

Our people are our greatest strengths. We strive to build a dynamic team that is passionate, committed, with an inclusive environment where everyone can thrive and grow. In the face of challenges brought by the Covid-19 pandemic in the past two years, QMCS has not ceased improving its institutional capacity. One step at a time, with team members' competencies and skills being constantly strengthened and the number of team members being increased, QMCS's overall capacity development has flourished.

Blue Pioneers Program

Having networked with fellow non-profit professionals in marine conservation, Secretary-General Yuqiang Li and former Project Officer Xiao Zhou graduated from the Blue Pioneer Program. Thanks to training courses on a variety of topics and field trips, they were able to refine their knowledge and expertise in marine science, marine biodiversity and conservation, and NGOs' capacity building.

New Team Members

Yuzhou WU recently joined QMCS as Communication Lead to support communication, partnership development and policy research. Since last year, we have also offered an internship program, hoping the talents will be valuable to the greater marine conservation community in the future.

Growing Up Together Jincao Program

QMCS successfully accomplished the first year of the "Growing Up Together Jincao Program" (Jincao) funded by the SEE Foundation. Based on the growth of QMCS, a second year of funding was granted, which assists QMCS in improving its capacity and skills in all aspects.

7. Building Our Capacity

In November, Lebin Liu, QMCS Marine Biodiversity Conservation Lead, attended a workshop on the theme of community-based conservation hosted by Jincao in Laoshi Village, Hainan Province, and gained valuable insights about the role of communities in conservation actions.



Lebin Liu, QMCS Marine Biodiversity Conservation Lead, attended the workshop on the theme of community-based conservation.
©Growing Up Together Jincao Program

Special Grant for Marine Conservation in the Post-COVID Era

After the Covid-19 crisis, a Special Grant for Marine Conservation jointly secured by the SEE Foundation and World Wildlife Fund (WWF) was offered to QMCS. The team actively participated in the training sessions co-organized by SEE and WWF, building new skill sets and liaising with other NGOs in branding, communication, fundraising, project management, etc.

Zhejiang Sustainable Aquaculture Study Tour



the Zhejiang Sustainable Aquaculture Study Tour
©QMCS

Invited by The Nature Conservancy (TNC), Songlin and Lebin joined the Zhejiang Sustainable Aquaculture Study Tour, sharing with peers QMCS' experience and understanding in the field of sustainable aquaculture.

7. Building Our Capacity

Xianjian Inn

The newly launched "Xianjian Inn" volunteer project has received strong support from some experienced seafood "foodies". Through conducting surveys on aquatic products in supermarkets in several cities, volunteers have given us a hand in the preparation of the upcoming CSSA consumer handbooks.



Surveys on aquatic products in supermarkets
©QMCS



Surveys on aquatic products in supermarkets
©QMCS

8. Epilogue

Promoting sustainable fisheries has been and will continue to be our calling. The UN has declared 2022 the International Year of Artisanal Fisheries and Aquaculture. We look forward to taking advantage of this opportunity to assist the drive towards sustainable small-scale fisheries.

Moreover, we will carry on identifying and conserving ETP species and their critical habitats in China, exploring the application of other effective area-based conservation measures (OECMs) and improving the ecological integrity of China's marine ecosystems.

Based on science evidence and local practice, QMCS will also unceasingly forge ahead with our flagship project CSSA, and take a step further in public education of responsible aquatic product consumption. In addition to assessing the environmental performance and resources of fished and farmed aquatic products of consumers' interest, as well as writing science articles, QMCS will experiment with customized handbooks of sustainable consumption of aquatic products and other educational materials for Chinese seafood-consuming cities.

The blue food produced by sustainable marine fisheries and aquaculture underpins food security in China and around the world, while marine biodiversity and ecosystems are the core stones of a healthy planet and human well-being. QMCS looks forward to joining forces with funders, partners, members, volunteers, the media and people who care for the ocean, to march toward a better future for our blue planet.

9. Our Team and Contact



Songlin WANG

QMCS Founder & Chair and TR CEO

YSE 05', 20 years+ conservation experience with WWF, Paulson Institute and Ocean Outcomes; Pew Marine Fellow; World Economic Forum Friends of Ocean Alliance



Yuqiang LI

QMCS Secretary General
Science Drawing Specialist, Self-trained Ichthyologist & Aquascape Designer
Blue Pioneer Program, 20'



Lebin LIU

QMCS Marine Biodiversity Conservation Lead

B.Agr. in Horticulture, UCD-SCAU
MSc in Ecology, Evolution and Conservation, Imperial College
Worked for Shandong Marine Biology Institute



Lu FANG

QMCS-TR Sustainable Fishery Lead

BS in Fisheries Science, Ocean University of China,
MSc in Marine Management Policy, Tokyokaiyo University
Blue Pioneer Program, 18'



Yuzhou WU

QMCS Communication Lead

MA in Political Science, University of Lausanne
Worked for Fortune 500 companies, non-profits in Switzerland and Marine & Polar Program at IUCN
Blue Pioneer Program, 22'



Xiaoshu LIN

NRDC-QMCS Joint Fellow

BA in International Relations (Environmental Science & Policy Minor), William & Mary
Worked for World Animal Protection and SEE Foundation

Qingdao Marine Conservation Society

3F, No.9 Nanhai Road, Shi Nan District, Qingdao, China

<http://www.qmcs.org.cn>

qmcs0532@126.com

Wechat Account: CSSA-QMCS



Annex : Acknowledgements

Thanks to Qingdao Municipal Civil Affairs Office and Qingdao Association for Science and Technology for their guidance and support.

Thanks to all funders, partners, media, members and volunteers for their support. They are listed in no particular order below.

Zhilan Foundation
World Wildlife Fund
One Planet Foundation
SEE Foundation
The Paradise International Foundation
Aquaculture Stewardship Council
Ocean Outcomes LLC
Monterey Bay Aquarium
Natural Resources Defense Council
Environmental Defense Fund
Conservation International
The Nature Conservancy
China Aquatic Products Processing and Marketing Association
Spoon-billed Sandpiper in China
Greenpeace
Zhangzhou Aquatic Products Processing and Marketing Association
Greenovation Hub
China Dialogue
International Union for Conservation of Nature
Seafood Legacy
Oak
Oceans 5
The David and Lucile Packard Foundation
National Fisheries Institute Crab Council (US)
United Nations Development Programme
Shenzhen Mangrove Wetlands Conservation Foundation
Qingdao Xihai'an District Lanwan Conservation Center
Binhai District Jiangbei Wetland Conservation Center

Annex : Acknowledgements

Qingdao Birding Association
Fisheries Research Institute of Fujian
Fish Biology Laboratory, College of Ocean and Earth Sciences, Xiamen University
Fujian Provincial Department of Ocean and Fisheries
Ocean University of China
Chinese Academy of Fishery Sciences
Tangshan Daqing River Wildlife Rescue Station
Zhejiang Marine Fisheries Research Institute
Yuan Philanthropy Consulting
Ant Foundation
He Yi Institute
Blue Honor
Laoshi Village, Haitou Town, Danzhou City
Youhong Wang (Marine Science Research Institute of Shandong Province)
Hongjun Liu (Marine Science Research Institute of Shandong Province)
Rijia Chen (Executive Vice Secretary of Aquatic Products Processing and Marketing Association of Guangdong Province)
Guocheng Yao (former Director of Fisheries Technology Extension Center of Guangdong Province)
Zilun Liu (Officer of Aquatic Products Processing and Marketing Association of Guangdong Province)
Interns: Hao Li, Zixuan Chang, Tianwei Mou
Volunteers: Yiqian You, Jiahan Tong, Boyao Huang