

## Supplementary

**Table S1.** Items for the In-depth Interviews.

No.	Question
1	How do you think the environmental change on Waisanding Sandbar will affect the development of fishing communities in Chiayi?
2	As the main producing area of Chiayi's oyster farming is located on Waisanding Sandbar, what are the key factors affecting the sustainable development of oyster farming?
3	What are the difficulties or challenges facing the operation of Chiayi's oyster farming industry (or recreational fishery)? What are the main issues in your opinion?
4	What do you think are the strategies to improve or avoid environmental change on Waisanding Sandbar?
5	Suppose the oyster business is facing increasing difficulties that will affect the social economy of fishing communities. To pursue the sustainable development of fishing communities, what strategies do you think are more effective to avoid or mitigate the impact?

**Table S2.** Interviewees in both rounds of focus group interviews.

Round 1		Round 2	
A	Chiayi County Government	A, B	Fisheries agency
B	Fisheries organization	C	Chiayi County Government
C, D, E, F, G	Oyster aquafarmers	D	Dongshih Township office
H	Tourism fishing operator	E	Scholar
		F	Fisheries organization
		G	Chiayi Dongshih Nautical Tourism Association
		H, I, J, K	Oyster aquafarmers

**Table S3.** AHP questionnaire: Aquafarmer interviewees.

No.	Years of Experience	Floating Rack Area (beds)	Cradle Rack Area (ha)
1	45	60	0.5
2	8	0	0.6
3	40	10	3
4	3	50	0.5
5	40	100	0.9
6	15	20	0.6
7	14	15	0.25
8	10	20	0.5
9	10	0	0.6
10	5	15	0
11	2	5	0
12	20	100	0
13	5	20	0
14	50	70	0.8
15	3.5	30	0.8
16	40	25	0.95
17	35	30	0.8
18	15	15	0.68
19	30	36	0

**Table S4.** Import volume and average price of major oyster importing countries in Taiwan's markets over the years.

Unit: metric ton, NT dollar/kg

Country	Vietnam		Japan		South Korea		The U.S.	
Year	Import volume	Average price	Import volume	Average price	Import volume	Average price	Import volume	Average price
2012	26	23	68	288	287	97	405	61
2013	75	31	90	239	245	123	323	47
2014	48	34	148	227	408	118	412	53
2015	59	36	290	196	371	133	466	70
2016	74	56	182	318	350	140	384	60
2017	150	69	290	217	352	123	386	50
2018	34	78	750	177	369	117	432	55
2019	201	79	667	216	466	130	396	70
2020	1356	72	660	205	299	125	156	78
2021	1786	74	894	193	491	129	164	69

Note: The average farm price in Chiayi in 2021 was approximately NT\$250-280 per kilogram.

Source: Agricultural statistics <https://agrstat.coa.gov.tw/sdweb/public/trade/TradeCoa.aspx>