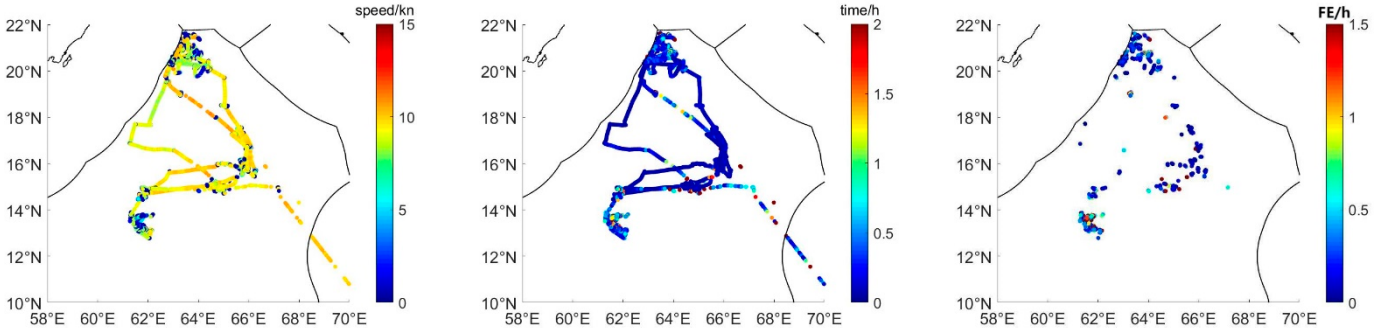
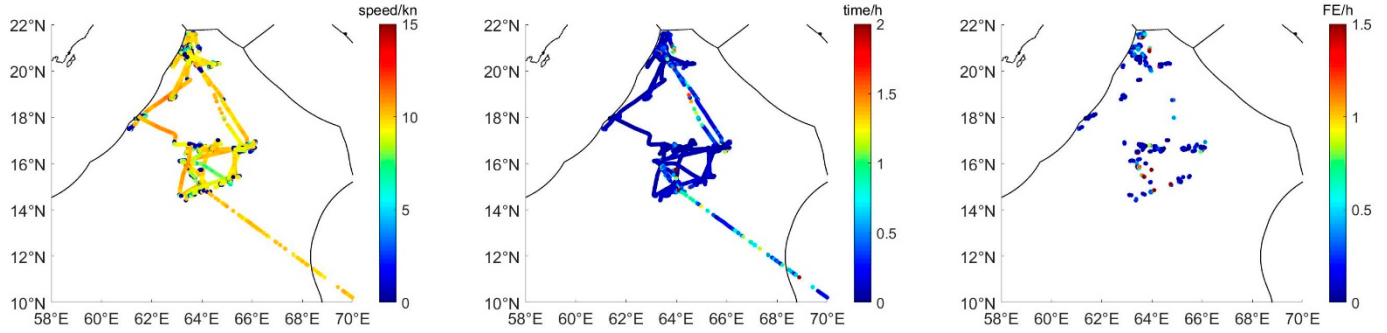


(**a**) (**b**) (**c**)

Figure S1. (a) Trajectory of a single fishing vessel using speed with MMSI No. 412440745 in 2021. (b) Trajectory of a single fishing vessel using duration with MMSI No. 412440745 in 2021. (c) Trajectory of a single fishing vessel using FE with MMSI No. 412440745 in 2021.



(**a**) (**b**) (**c**)

Figure S2. (a) Trajectory of a single fishing vessel using speed with MMSI No. 412440745 in 2022. (b) Trajectory of a single fishing vessel using duration with MMSI No. 412440745 in 2022. (c) Trajectory of a single fishing vessel using FE with MMSI No. 412440745 in 2022.

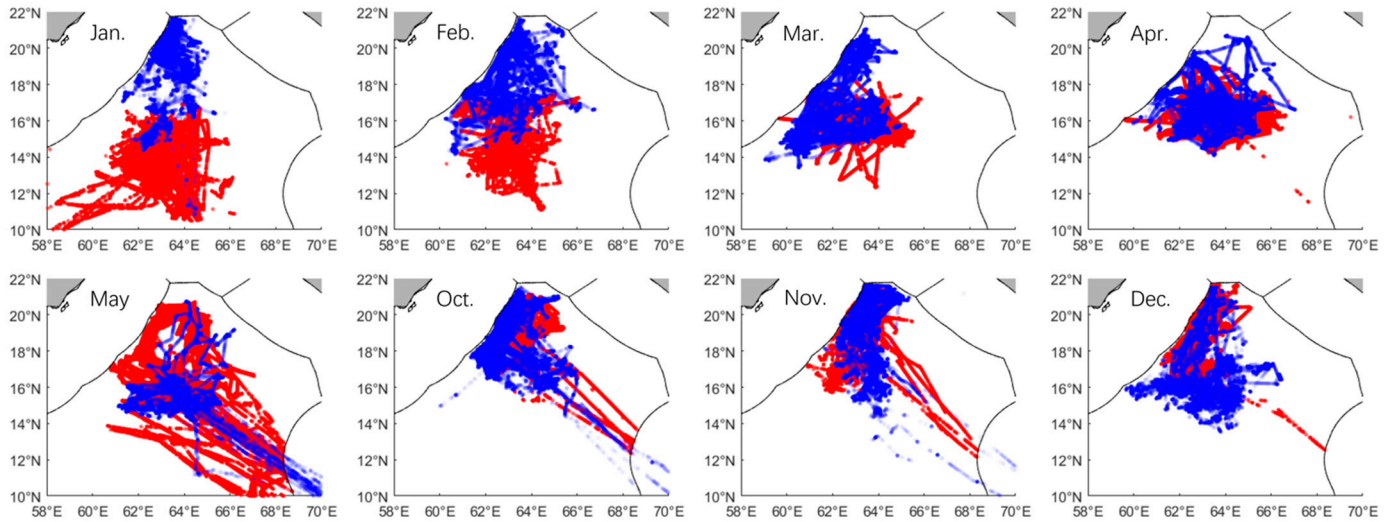
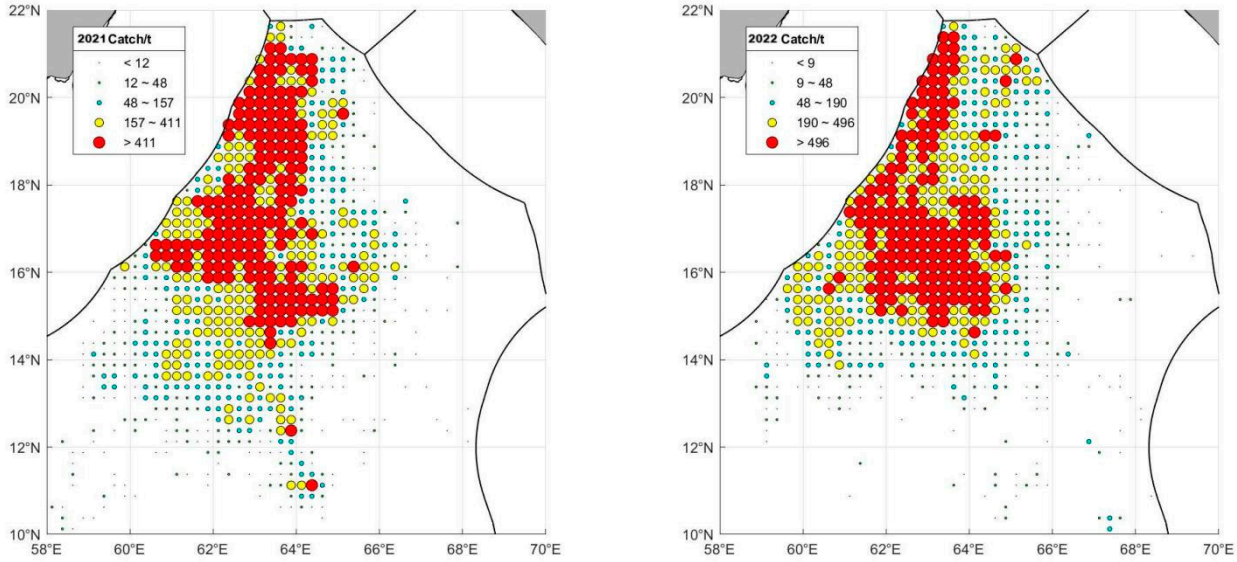
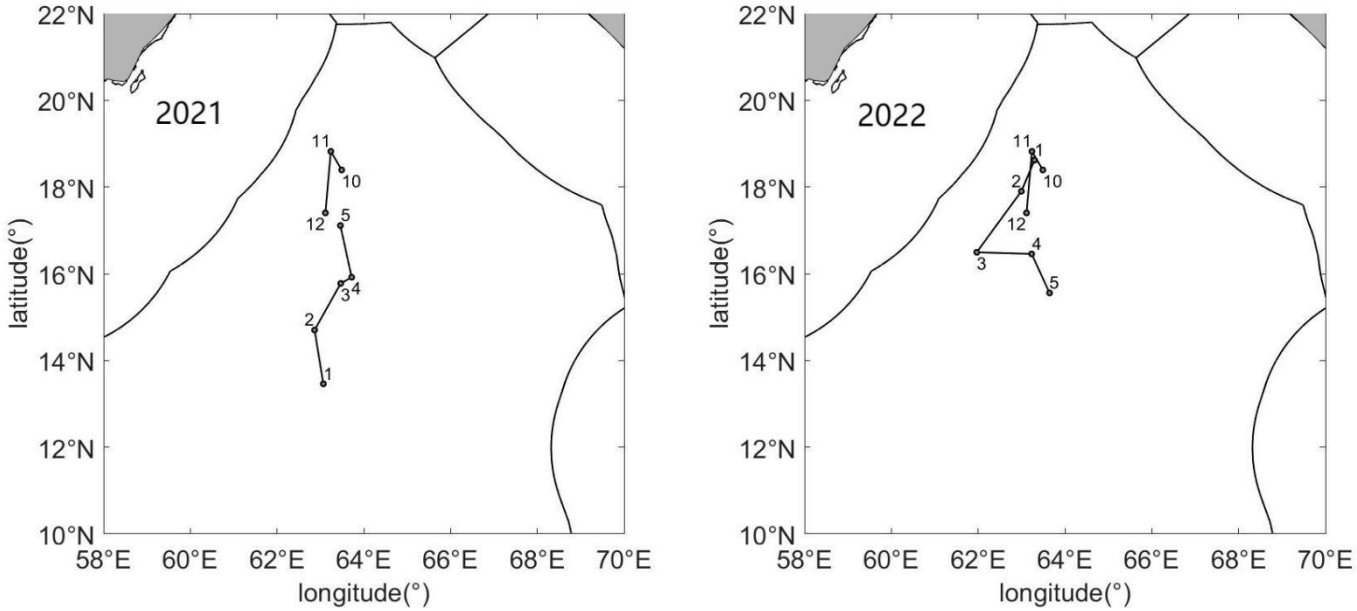


Figure S3. Composite map of monthly spatial distribution of fishing vessel trajectory points in 2021 (Red) and 2022 (Blue)



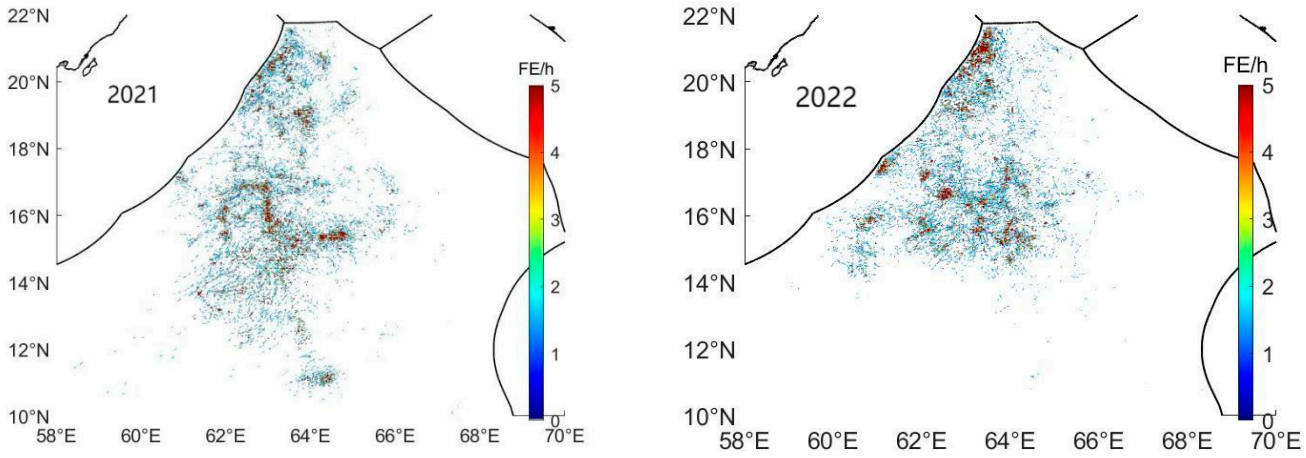
(a) (b)

Figure S4. (a) Mapping of light purse seine vessel distribution with fishing production data in 2021 , with Catch in t. (b) Mapping of light purse seine vessel distribution with fishing production data in 2022 , with Catch in t.



(a) (b)

Figure S5. (a) Shift in center of gravity of fishing vessels in 2021. (b) Shift in center of gravity of fishing vessels in 2022.



(a) (b)

Figure S6. (a) Fishing intensity map at a resolution of 0.01°×0.01° in 2021. (b) Fishing intensity map at a resolution of 0.01°×0.01° in 2022.

Table S1. Conventional statistics of fishing effort by month and global spatial autocorrelation parameters for fishing vessels(2021)

Month	Mean	SD	Skewness	Kurtosis	Cv(S/m)	S2/m	Moran' s I	Z Score	p
2021.01	16.45	19.57	3.86	21.84	1.19	1.33	0.10	44.04	0.00
2021.02	17.18	17.96	2.87	12.98	1.05	0.76	0.66	102.22	0.00
2021.03	25.31	30.53	2.89	11.71	1.21	0.46	0.76	117.70	0.00
2021.04	21.00	28.81	4.35	29.32	1.37	1.40	0.60	93.99	0.00
2021.05	10.22	11.81	4.24	29.37	1.16	2.88	0.19	20.02	0.00
2021.10	24.16	32.44	3.73	21.70	1.34	0.90	0.09	22.86	0.00
2021.11	21.46	24.09	2.51	8.23	1.12	0.38	0.05	16.20	0.00
2021.12	25.99	30.49	2.40	7.33	1.17	0.28	0.39	38.53	0.00

Table S2. Conventional statistics of fishing effort by month and global spatial autocorrelation parameters for fishing vessels(2022)

Month	Mean	SD	Skewness	Kurtosis	Cv(S/m)	S2/m	Moran' s I	Z Score	p
2022.01	19.00	21.17	2.56	8.84	1.11	0.47	0.21	33.73	0.00
2022.02	14.39	22.81	7.01	74.31	1.59	5.17	0.51	48.04	0.00
2022.03	17.81	22.50	3.65	19.90	1.26	1.12	0.51	33.95	0.00
2022.04	18.12	21.39	2.48	8.15	1.18	0.45	0.30	32.33	0.00
2022.05	15.33	19.98	3.15	12.27	1.30	0.80	0.15	36.48	0.00
2022.10	20.51	26.96	4.82	35.98	1.31	1.75	0.33	25.63	0.00
2022.11	23.65	34.44	4.69	32.23	1.46	1.36	0.17	51.80	0.00
2022.12	16.23	17.97	2.37	6.82	1.11	0.42	0.44	41.69	0.00