

Descriptions for supplementary tables

Table S1 Inundation area, water depth and population in risk for the Bohai Economic Rim by 2050, 2100 and 2150 (RSLR_{IPCC}&RSLR). a, b, c, and d represent SSP2-4.5, SSP3-7.0, SSP5-8.5 climate scenarios and ESL condition, respectively.

Table S2 Demographic structure of original and at-risk population in the Bohai Economic Rim by 2050.

Table S3 Demographic structure of original and at-risk population in the Bohai Economic Rim by 2100.

Table S4 Inundation area, water depth, and population at risk in the Bohai Economic Rim considering RSLR under different DEMs suggesting w/ and w/o coastal flood control initiatives in given future years. Simulations use the 2000 SRTM DEM (pre-flood control, pre-reclamation baseline, refer to w/o existing coastal flood control initiatives) and 2011-2015 Copernicus DEM (post-flood control, including levees and reclaimed land, refer to w/ existing coastal flood control initiatives). a, b, c, and d represent SSP2-4.5, SSP3-7.0, SSP5-8.5 climate scenarios and ESL condition, respectively.

Table S1. Inundation area, water depth and population in risk for the Bohai Economic Rim by 2050, 2100 and 2150 (RSLR_{IPCC}&RSLR).

S/N	Year	SLR			RSLR			
		Inundation area (km ²)	Water depth (m)	Population in risk	Inundation area (km ²)	Water depth (m)	Population in risk	
1	2050	a.	92.35	11.49	24407	322.38	15.06	33346
		b.	98.35	11.51	27956	343.38	15.10	38276
		c.	102.14	11.53	31086	389.25	15.14	39246
		d.	342.38	11.63	37826	418.29	15.34	44486
2	2100	a.	392.25	15.23	40141	823.62	16.62	107296
		b.	402.46	15.33	43579	994.25	16.79	221467
		c.	428.19	15.45	57626	1542.36	17.03	463967
		d.	497.29	15.60	71086	1687.45	18.34	706867
3	2150	a.	492.35	15.51	71467	1043.62	16.95	201486
		b.	553.41	15.80	88997	1214.25	18.54	297267
		c.	772.14	16.81	91136	1642.36	22.22	553667
		d.	1072.38	17.05	194767	2084.37	22.47	796867

Table S2. Demographic structure of original and at-risk population in the Bohai Economic Rim by 2050.

S/N	Age group	Male				Female			
		SSP2-4.5	SSP3-7.0	SSP5-8.5	Original	SSP2-4.5	SSP3-7.0	SSP5-8.5	Original
1	<10	2.47%-2.65%	1.60%-1.78%	2.07%-2.25%	3.20%-3.38%	2.53%-2.71%	2.84%-3.02%	3.19%-3.37%	4.12%-4.12%
2	10-19	2.40%-2.58%	2.36%-2.54%	3.41%-3.59%	3.76%-3.94%	2.96%-3.14%	3.17%-3.35%	3.40%-3.58%	3.95%-3.95%
3	20-29	6.98%-7.16%	6.66%-6.84%	6.43%-6.61%	4.56%-4.74%	5.91%-6.09%	5.38%-5.56%	4.94%-5.12%	4.30%-4.30%
4	30-39	8.79%-8.97%	8.86%-9.04%	8.60%-8.78%	6.76%-6.94%	7.81%-7.99%	6.57%-6.75%	6.05%-6.23%	5.80%-5.80%
5	40-49	8.00%-8.18%	7.17%-7.35%	8.11%-8.29%	6.27%-6.45%	8.09%-8.27%	6.40%-6.58%	6.19%-6.37%	5.08%-5.08%
6	50-59	7.10%-7.28%	7.94%-8.12%	7.72%-7.90%	5.84%-6.02%	7.69%-7.87%	6.50%-6.68%	6.29%-6.47%	5.18%-5.18%
7	60-69	5.81%-5.99%	6.50%-6.68%	6.06%-6.24%	8.40%-8.58%	6.48%-6.66%	7.80%-7.98%	7.49%-7.67%	8.47%-8.47%
8	70-79	3.47%-3.65%	3.82%-4.00%	4.09%-4.27%	5.92%-6.10%	4.53%-4.71%	5.73%-5.91%	5.69%-5.87%	6.52%-6.52%
9	80-89	2.04%-2.22%	2.17%-2.35%	2.40%-2.58%	3.87%-4.05%	2.03%-2.21%	2.06%-2.24%	2.13%-2.31%	5.42%-5.42%
10	90-99	0.05%-0.23%	0.08%-0.26%	0.15%-0.33%	0.48%-0.66%	0.26%-0.44%	0.24%-0.42%	0.27%-0.45%	1.04%-1.04%
11	>100	0.01%-0.05%	0-0.12%	0.02%-0.14%	0.01%-0.10%	0.02%-0.13%	0.01%-0.13%	0.01%-0.16%	0.04%-0.15%

Table S3. Demographic structure of original and at-risk population in the Bohai Economic Rim by 2100.

S/N	Age group	Male				Female			
		SSP2-4.5	SSP3-7.0	SSP5-8.5	Original	SSP2-4.5	SSP3-7.0	SSP5-8.5	Original
1	<10	1.21%-1.39%	1.41%-1.59%	1.78%-1.96%	1.71%-1.89%	1.46%-1.64%	1.10%-1.28%	1.12%-1.30%	1.69%-1.85%
2	10-19	1.90%-2.12%	1.83%-2.05%	2.63%-2.85%	2.23%-2.45%	1.82%-2.04%	1.38%-1.60%	1.34%-1.56%	2.19%-2.39%
3	20-29	5.98%-6.18%	6.28%-6.48%	5.74%-5.94%	3.18%-3.38%	7.22%-7.30%	5.48%-5.77%	5.70%-5.80%	3.07%-3.37%
4	30-39	7.04%-7.20%	5.75%-5.91%	6.22%-6.38%	3.85%-4.01%	7.24%-7.40%	5.81%-6.07%	6.06%-6.12%	3.69%-3.85%
5	40-49	7.74%-7.98%	6.64%-6.88%	6.56%-6.80%	4.74%-4.98%	7.69%-8.13%	7.25%-7.39%	7.07%-7.21%	4.57%-4.69%
6	50-59	8.71%-8.89%	7.74%-7.92%	7.40%-7.58%	6.84%-7.02%	8.85%-9.13%	9.11%-9.29%	7.67%-8.15%	6.50%-6.74%
7	60-69	5.16%-5.36%	7.25%-7.45%	8.86%-9.06%	7.75%-7.95%	4.22%-4.42%	6.12%-6.32%	5.49%-5.69%	7.32%-7.56%
8	70-79	6.11%-6.33%	6.26%-6.48%	6.29%-6.51%	8.36%-8.58%	3.98%-4.20%	6.35%-6.57%	4.92%-5.14%	8.16%-8.38%
9	80-89	5.62%-5.82%	6.01%-6.21%	6.28%-6.48%	8.11%-8.31%	4.78%-4.98%	7.26%-7.46%	6.21%-6.41%	9.46%-9.53%
10	90-99	1.30%-1.44%	1.53%-1.67%	1.17%-1.31%	1.83%-1.97%	0.91%-1.05%	1.49%-1.63%	2.37%-2.51%	3.56%-3.72%
11	>100	0.02%-0.15%	0.04%-0.08%	0.09%-0.13%	0.06%-0.21%	0.05%-0.18%	0.04%-0.21%	0.01%-0.12%	0.17%-0.24%

Table S4. Inundation area, water depth, and population at risk in the Bohai Economic Rim considering RSLR under different DEMs suggesting w/ and w/o coastal flood control initiatives in given future years.

S/N	Year	Inundation area (km2)			Water depth (m)			Population in risk			
		w/ flood control	w/o flood control	Increase (%)	w/ flood control	w/o flood control	Increase (%)	w/ flood control	w/o flood control	Increase (%)	
1	2050	a.	322.38	823.62	155.48	15.06	19.52	29.61	33346	83521	150.47
		b.	343.38	1002.14	191.84	15.10	19.60	29.80	38276	225896	490.18
		c.	389.25	1550.88	298.42	15.14	19.67	29.92	39246	471726	1101.97
		d.	418.29	1702.43	307.00	15.34	19.97	30.18	44486	713846	1504.65
2	2100	a.	823.62	2030.57	146.54	16.62	20.52	23.47	107296	133667	24.58
		b.	994.25	2469.47	148.37	16.79	20.83	24.06	221467	355763	60.64
		c.	1542.36	4128.86	167.70	17.03	21.15	24.19	463967	738296	59.13
		d.	1687.45	4942.13	192.88	18.34	21.70	18.32	706867	1110148	57.05
3	2150	a.	1043.62	2030.57	94.57	16.95	20.77	22.54	201486	213479	5.95
		b.	1214.25	2469.47	103.37	18.54	21.68	16.94	297267	560906	88.69
		c.	1642.36	4128.86	151.40	22.22	23.23	4.55	553667	1175269	112.27
		d.	2084.37	4942.13	137.10	22.47	23.81	5.96	796867	1787571	124.32