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Supplementary Materials

Risk-Benefit Assessment of Increasing Fish Intake with Reductions in Red and Processed Meat Consumption in China

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Supplementary Methods

S1. Energy-matched sensitivity analysis

We linked energy values per 100 g edible portion from the China Food Composition Tables [1] to six-digit food codes using exact code matches, representative food or name matches, or same-class proxies. To calculate representative energy densities for the 22 fish categories and two meat groups, we weighted each food code by its summed daily intake across participants. Daily intake was calculated as recorded grams divided by recorded survey days. For composite foods, only the estimated meat components contributed to meat energy. Table S2 reports the resulting energy densities.

The analysis retained all 32,351 participants and their baseline fish intake. Planned fish increments and the composition of additional fish followed S1 or S2 at each nominal target. We reduced fish increments when their energy exceeded the available baseline red and processed meat energy. Processed meat was removed first, followed by red meat, until the energy removed matched the energy of the added fish. Other foods were held constant. We then used the resulting fish and meat intakes in the original exposure model and recalculated all seven health pathways with the main-analysis dose–response relationships and uncertainty draws. Energy densities were fixed, so the uncertainty intervals did not include uncertainty in code proxies or category composition.

S2. Fish-species allocation sensitivity analyses

We compared the original probability-based allocation with an alternative that assigned each recipient the complete fish-category proportions of a sampled consumer. The original rule selected each fish category using its observed consumption probability, then re-scaled the selected categories' intake shares to sum to one. Under the alternative rule, consumers were sampled with replacement. In S1, participants who reported fish intake retained their own proportions, while those who reported no fish intake received the sampled consumer's proportions across the 22 categories. In S2, all participants requiring additional fish received proportions from consumers who had reported at least one of the seven selected categories. These proportions were calculated using only the seven categories and re-scaled to sum to one. We sampled from the same province and urban-rural group when at least 20 eligible consumers were available. If fewer were available, we expanded the pool to the same province and then to all eligible consumers in the survey. The assigned proportions were multiplied by each recipient's planned fish increment and used at all three targets. Baseline fish intake, fish increments and reductions in both meat groups were the same as in the main analysis.

For Table S31, we evaluated one matched-consumer allocation with the original seven-pathway model, 100,000 variability iterations and the same 1,000 uncertainty draws as the main analysis. The 95% uncertainty intervals reflect parameter uncertainty for those assigned fish mixtures. We then repeated each allocation rule independently 50 times to assess variation from random assignment. Dose-response coefficients, disability weights and disease-burden inputs were fixed at the medians of their respective

original uncertainty draws. We recalculated baseline risks and reference effects with these fixed parameters and used common random numbers in the exposure simulations. Table S32 reports the median and minimum-maximum range of total DALY differences across the 50 assignments for each rule. We calculated the S2 advantage within each assignment before summarizing these differences. The ranges describe variation between fish-species assignments and are not 95% uncertainty intervals. Both analyses retained the original short-term dietary measurements.

Supplementary Tables

Table S1. Consumption of the 22 fish categories among survey participants aged ≥15 years who reported fish intake during the recalls.

Fish category	Type	Consumers, n	Proportion of total Consumers, %	Mean intake, g/day	Proportion of total fish intake, %
Grass carp	Freshwater fish	2,897	24.68	14.91	22.08
Crucian carp	Freshwater fish	2,273	19.36	10.48	15.51
Common carp	Freshwater fish	1,214	10.34	6.36	9.42
Hairtail	Marine fish	1,594	13.58	6.28	9.29
Small yellow croaker	Marine fish	674	5.74	2.66	3.93
Silver carp	Freshwater fish	550	4.69	2.64	3.90
Bighead carp	Freshwater fish	528	4.50	2.46	3.64
Tilapia	Freshwater fish	456	3.88	1.93	2.87
Sea bass	Marine fish	523	4.46	1.75	2.59
Pomfret	Marine fish	356	3.03	1.40	2.08
Spanish mackerel	Marine fish	295	2.51	1.26	1.87
Bream	Freshwater fish	310	2.64	1.18	1.75
Sharpbelly	Freshwater fish	304	2.59	1.11	1.64
Snakehead	Freshwater fish	279	2.38	1.05	1.55
Black carp	Freshwater fish	251	2.14	1.07	1.58
Large yellow croaker	Marine fish	209	1.78	0.86	1.28
Mandarin fish	Freshwater fish	247	2.10	0.84	1.24
Flatfishes	Marine fish	155	1.32	0.60	0.88
Cod	Marine fish	119	1.01	0.50	0.74
Other freshwater fish	Freshwater fish	1,081	9.21	4.14	6.13
Other marine fish	Marine fish	484	4.12	1.73	2.56
Processed fish products	Processed fish product	866	7.38	2.33	3.45
All fish	—	11,738	36.28	67.54	100.00

Note: The analysis was restricted to 11,738 participants who consumed any of the 22 fish categories (>0 g/day). For each category, consumers were participants with a category-specific intake greater than 0 g/day, and the corresponding percentage was calculated using all 11,738 fish consumers as the denominator. Mean intake was calculated across the same 11,738 fish consumers; fish consumers who did not consume a given category contributed 0 g/day for that category. The proportion of total fish intake was calculated as the sum of daily intake of each category divided by the summed intake of all 22 categories among fish consumers. Category-specific consumer percentages are not additive because one participant could consume multiple fish categories, whereas intake proportions sum to 100%.

Table S2. EPA and DHA and methylmercury concentrations and representative energy densities for the 22 fish categories.

Fish category	Type	EPA and DHA, mg/100 g	MeHg, μg/kg wet weight	Energy density, kcal/100 g edible portion[d]
Grass carp	Freshwater fish	75.5[2]	10.9[3]	96.00[1]
Crucian carp	Freshwater fish	100.0[2]	40.2[3]	89.02[1]
Common carp	Freshwater fish	81.0[2]	27.4[3]	109.00[1]
Hairtail	Marine fish	343.3[2]	65.1[4]	119.67[1]
Small yellow croaker	Marine fish	1194.0[2]	82.0[4]	114.00[1]
Silver carp	Freshwater fish	227.0[2]	18.6[3]	84.00[1]
Bighead carp	Freshwater fish	220.5[2]	24.2[3]	100.00[1]
Tilapia	Freshwater fish	33.3[2]	17.3[3]	94.16[1]
Sea bass	Marine fish	641.3[2]	21.0[5]	105.01[1]
Pomfret	Marine fish	868.0[2]	20.6[5]	140.00[1]
Spanish mackerel	Marine fish	1892.7[2]	27.4[5]	120.38[1]
Bream	Freshwater fish	89.0[2]	12.9[3]	135.00[1]
Sharpbelly	Freshwater fish	156.0[2]	42.6[3]	103.00[1]
Snakehead	Freshwater fish	69.6[1]	39.7[3]	85.00[1]
Black carp	Freshwater fish	111.0[2]	16.6[3]	118.00[1]
Large yellow croaker	Marine fish	1587.0[2]	19.0[6]	97.00[1]
Mandarin fish	Freshwater fish	94.0[2]	32.9[3]	118.20[1]
Flatfishes	Marine fish	807.2[2]	20.8[5]	105.86[1]
Cod	Marine fish	625.0[2]	129.1[6]	88.44[1]
Other freshwater fish[a]	Freshwater fish	128.0[2]	31.1[3]	108.63[1]
Other marine fish[b]	Marine fish	625.0[2]	43.8[4]	130.38[1]
Processed fish products[c]	Processed fish product	373.8[2]	37.4[3,4]	187.09[1]

Note: EPA, eicosapentaenoic acid; DHA, docosahexaenoic acid; MeHg, methylmercury. The combined EPA and DHA concentration was expressed per 100 g of edible fish portion, and MeHg concentration was expressed on a wet-weight basis. Parameters were preferentially obtained from measurements of the same or equivalent fish species in China. When multiple samples were available for one category, the arithmetic mean was used. When species-specific data were unavailable, values for similar species or the group medians for freshwater or marine fish were assigned. Directly measured MeHg concentrations were preferred; otherwise, total mercury concentrations were converted to MeHg using a ratio of 79.2%[3].

a: The combined EPA and DHA concentration for other freshwater fish was assigned the freshwater-fish group median of 128.0 mg/100 g[2]. MeHg was estimated from the overall total mercury concentration of 39.3 μg/kg using the 79.2% conversion factor, yielding 31.13 μg/kg wet weight[3].

b: The combined EPA and DHA concentration for other marine fish was assigned the marine-fish group median of 625.0 mg/100 g[2]. MeHg was assigned the overall measured mean of 43.80 μg/kg wet weight for marine fish from coastal cities in China[4].

c: Processed fish products were classified as freshwater-derived, marine-derived, or of unknown fish origin. Products of unknown origin were assumed to contain equal proportions of freshwater and marine fish. The resulting consumption-weighted concentrations were 373.8 mg/100 g for combined EPA and DHA and 37.40 μg/kg wet weight for MeHg[2,3,4].

d: Energy densities were derived from the China Food Composition Tables[1] using the observed daily intake composition within each category. The corresponding representative densities were 270.17 kcal/100 g edible portion for red meat and 422.38 kcal/100 g edible portion for processed meat. These fixed parameters were used only in the energy-matched sensitivity analysis. Matching and weighting procedures are described in the Supplementary Methods.

Table S3. Fish categories included in the optimized fish-mix strategy (S2).

Fish category	Type	EPA and DHA, mg/100 g	MeHg, μg/kg wet weight
Silver carp	Freshwater fish	227.0[2]	18.6[3]
Bighead carp	Freshwater fish	220.5[2]	24.2[3]
Sea bass	Marine fish	641.3[2]	21.0[5]
Pomfret	Marine fish	868.0[2]	20.6[5]
Spanish mackerel	Marine fish	1892.7[2]	27.4[5]
Large yellow croaker	Marine fish	1587.0[2]	19.0[6]
Flatfishes	Marine fish	807.2[2]	20.8[5]

Note: EPA, eicosapentaenoic acid; DHA, docosahexaenoic acid; MeHg, methylmercury. The combined EPA and DHA concentration was expressed per 100 g of edible fish portion, and MeHg concentration was expressed on a wet-weight basis. Fish categories for the optimized fish mix strategy (S2) were selected according to their EPA and DHA and MeHg concentrations. We excluded processed fish products and the aggregate categories of other freshwater fish and other marine fish, leaving 19 specific unprocessed fish categories as candidates. The two aggregate categories were excluded because of their heterogeneous species composition. We examined the distributions of combined EPA and DHA and MeHg concentrations among the candidates and used the median EPA and DHA concentration (220.5 mg/100 g) and the 75th percentile of MeHg concentration (39.92 μg/kg) as selection thresholds. Seven fish categories met both criteria, EPA and DHA ≥220.5 mg/100 g and MeHg ≤39.92 μg/kg: silver carp, bighead carp, sea bass, pomfret, Spanish mackerel, large yellow croaker, and flatfishes.

Table S4. Number of participants included in each sex–age stratum used for exposure modeling.

Sex	Age group, years	Participants, n
Male	15-19	591
Male	20-24	511
Male	25-29	865
Male	30-34	1,391
Male	35-39	1,522
Male	40-44	1,574
Male	45-49	1,942
Male	50-54	1,993
Male	55-59	2,029
Male	60-64	1,079
Male	65-69	899
Male	70-74	488
Male	75-79	301
Male	≥80	235
Female	15-19	566
Female	20-24	574
Female	25-29	1,135
Female	30-34	1,850
Female	35-39	1,738
Female	40-44	1,598
Female	45-49	2,048
Female	50-54	2,200
Female	55-59	2,102
Female	60-64	1,084
Female	65-69	932
Female	70-74	510
Female	75-79	300
Female	≥80	294

Table S5. Health outcome specific inputs used in the health-impact and burden-of-disease models.

Health outcome	Exposure	Population	Event measure	Burden measure	Baseline source or model
Colorectal cancer	Red meat and processed meat intake	≥15 years	Incidence	DALYs	Colon and rectum cancer
Non-cardia stomach cancer	Processed meat intake	≥15 years	Incidence	DALYs	Stomach cancer
Type 2 diabetes	Red meat and processed meat intake	≥15 years	Incidence	DALYs	Type 2 diabetes
Fatal coronary heart disease	Combined EPA and DHA intake	≥15 years	Deaths	YLLs	Ischemic heart disease
Stroke	Combined EPA and DHA intake	≥15 years	Incidence	DALYs	Stroke
Offspring intellectual disability: fish pathway	Maternal fish intake	Women aged 15-49 years and their offspring	Offspring with IQ <85	Lifetime YLDs (DALYs)	Birth-cohort model
Offspring intellectual disability: MeHg pathway	Body-weight-adjusted maternal MeHg exposure	Women aged 15-49 years and their offspring	Offspring with IQ <85	Lifetime YLDs (DALYs)	Birth-cohort model

Note: DALY, disability-adjusted life-year; DHA, docosahexaenoic acid; EPA, eicosapentaenoic acid; GBD, Global Burden of Disease Study; IQ, intelligence quotient; MeHg, methylmercury; YLD, year lived with disability; YLL, year of life lost. Dose–response relationships are reported in Table 1 of the main manuscript. For outcomes supported by incidence-based dose–response evidence, the modeled relative change in incidence was assumed to produce the same proportional change in the corresponding GBD DALY burden, conditional on unchanged average disease duration, severity, and case-fatality patterns. The fatal coronary heart disease association was applied to deaths and YLLs.

Table S6. National age- and sex-specific population and baseline health-outcome inputs for China in 2020.

Panel A. Population, colorectal cancer, and non-cardia stomach cancer.

Sex	Age group, years	Population	CRC incidence	CRC DALYs	Non-cardia stomach cancer incidence	Non-cardia stomach cancer DALYs
Male	15-19	39,235,263	522 (388, 708)	10,323 (8,114, 13,223)	396 (253, 581)	2,617 (1,832, 3,781)
Female	15-19	33,812,916	227 (170, 323)	5,379 (4,260, 7,455)	224 (160, 302)	1,749 (1,379, 2,147)
Male	20-24	39,860,940	455 (351, 581)	12,665 (10,410, 15,975)	211 (137, 289)	4,922 (3,343, 6,664)
Female	20-24	35,451,003	224 (171, 297)	7,246 (5,775, 9,347)	138 (99, 178)	3,611 (2,981, 4,468)
Male	25-29	48,481,225	969 (796, 1,215)	29,796 (24,627, 36,475)	445 (294, 602)	12,559 (8,601, 16,665)
Female	25-29	44,085,147	432 (346, 567)	14,681 (11,968, 18,729)	315 (250, 377)	9,547 (7,620, 11,219)
Male	30-34	64,117,704	2,858 (2,380, 3,551)	72,993 (62,731, 88,896)	1,392 (1,046, 1,875)	36,778 (26,849, 50,376)
Female	30-34	60,654,565	1,109 (912, 1,499)	31,943 (26,831, 41,901)	756 (622, 886)	21,280 (18,140, 24,538)
Male	35-39	51,221,337	4,510 (3,757, 5,561)	101,683 (87,438, 122,954)	2,181 (1,657, 3,122)	58,583 (46,741, 81,021)
Female	35-39	48,516,962	1,563 (1,279, 2,123)	40,404 (34,257, 53,509)	928 (783, 1,086)	26,480 (22,830, 29,960)
Male	40-44	47,912,094	7,371 (6,316, 8,529)	152,204 (137,374, 170,804)	4,391 (3,459, 6,572)	106,770 (87,158, 154,985)
Female	40-44	45,726,258	2,549 (2,126, 3,514)	58,858 (50,471, 78,423)	1,405 (1,189, 1,635)	36,338 (32,230, 41,000)
Male	45-49	58,459,388	16,222 (13,722, 19,649)	293,585 (265,251, 339,156)	9,836 (7,695, 14,685)	224,082 (188,856, 324,734)
Female	45-49	56,409,349	5,864 (4,879, 7,927)	113,918 (99,288, 153,838)	2,776 (2,452, 3,276)	66,833 (59,810, 77,818)
Male	50-54	61,397,951	26,433 (22,636, 30,868)	398,894 (364,877, 452,107)	17,390 (13,307, 25,658)	369,260 (306,363, 552,096)
Female	50-54	60,444,471	11,083 (9,195, 15,390)	174,307 (152,852, 242,439)	4,659 (3,997, 5,381)	104,444 (94,468, 120,641)
Male	55-59	51,131,995	34,880 (30,150, 40,506)	457,595 (425,609, 513,767)	23,000 (18,112, 33,520)	458,639 (382,130, 668,149)
Female	55-59	50,957,804	15,012 (12,498, 20,482)	201,322 (177,296, 268,652)	5,598 (4,754, 6,964)	118,751 (105,510, 143,678)
Male	60-64	37,225,842	39,065 (33,400, 46,700)	435,342 (400,697, 484,324)	26,713 (20,454, 35,947)	468,305 (368,619, 623,889)
Female	60-64	36,871,461	17,576 (14,499, 23,836)	196,553 (169,933, 250,619)	6,654 (5,644, 8,190)	124,629 (110,671, 148,954)
Male	65-69	36,576,834	53,129 (46,006, 63,156)	518,375 (475,115, 607,240)	36,485 (26,045, 47,998)	575,211 (434,583, 735,437)
Female	65-69	37,920,795	26,859 (22,240, 36,170)	259,599 (225,870, 335,770)	10,563 (8,790, 12,582)	176,931 (153,626, 207,555)
Male	70-74	24,359,769	47,033 (40,541, 56,861)	407,609 (372,624, 481,133)	33,073 (23,884, 44,776)	459,598 (340,349, 606,501)
Female	70-74	25,636,209	28,169 (22,744, 38,924)	240,794 (203,861, 323,846)	11,287 (9,376, 12,830)	165,240 (142,726, 192,112)

Male	75-79	14,858,194	38,459 (32,748, 47,033)	297,735 (269,924, 345,363)	24,798 (17,101, 31,051)	302,116 (216,095, 368,122)
Female	75-79	16,580,437	25,384 (20,183, 33,167)	195,378 (165,172, 249,468)	10,568 (8,503, 12,216)	133,521 (111,852, 157,114)
Male	≥80	15,450,805	41,588 (34,628, 49,236)	308,020 (264,325, 350,811)	24,850 (16,802, 30,185)	259,589 (177,370, 317,520)
Female	≥80	20,741,084	32,917 (25,098, 44,892)	249,535 (189,379, 338,523)	16,097 (11,844, 19,591)	171,246 (129,455, 209,645)

Note: Values are point estimates (95% uncertainty intervals), except population. CRC, colorectal cancer. According to the 2019 China Cancer Registry Annual Report, the baseline burden of non-cardia gastric cancer was estimated as 57% of the incident cases and DALYs for all gastric cancer[7].

Table S6. National age- and sex-specific population and baseline health-outcome inputs for China in 2020.

Panel B. Type 2 diabetes, fatal coronary heart disease, and stroke

Sex	Age group, years	T2D incidence	T2D DALYs	CHD deaths	CHD YLLs	Stroke incidence	Stroke DALYs
Male	15-19	143,624 (101,650, 188,711)	15,790 (9,777, 24,290)	501 (343, 687)	36,359 (24,875, 49,852)	5,326 (3,517, 7,834)	52,868 (42,073, 65,403)
Female	15-19	96,523 (68,964, 129,519)	11,877 (7,494, 17,895)	192 (130, 267)	13,923 (9,442, 19,412)	4,125 (2,576, 6,124)	31,341 (24,663, 39,639)
Male	20-24	245,923 (192,375, 297,964)	74,801 (46,235, 114,428)	953 (757, 1,177)	64,391 (51,174, 79,523)	7,265 (5,133, 9,627)	71,498 (59,206, 85,494)
Female	20-24	153,899 (120,196, 189,847)	52,055 (33,232, 80,214)	340 (239, 461)	22,969 (16,191, 31,198)	5,000 (3,458, 7,169)	39,254 (30,627, 49,352)
Male	25-29	209,535 (142,124, 279,282)	160,395 (102,839, 233,986)	1,967 (1,609, 2,342)	122,935 (100,595, 146,398)	12,277 (9,008, 16,749)	127,862 (109,647, 149,177)
Female	25-29	108,463 (67,909, 153,478)	105,519 (67,976, 151,790)	540 (408, 667)	33,764 (25,534, 41,704)	7,630 (5,122, 11,259)	60,295 (48,770, 74,037)
Male	30-34	219,766 (142,127, 307,689)	292,321 (196,572, 411,671)	4,938 (4,227, 5,735)	284,605 (243,638, 330,548)	25,613 (19,634, 32,459)	286,536 (248,004, 325,542)
Female	30-34	105,864 (63,091, 158,503)	183,568 (125,189, 261,694)	1,254 (921, 1,504)	72,305 (53,096, 86,684)	14,394 (10,612, 19,469)	117,516 (92,129, 142,077)
Male	35-39	177,592 (114,080, 254,492)	305,967 (210,849, 424,571)	7,698 (6,531, 8,960)	406,364 (344,743, 472,965)	31,205 (23,591, 43,110)	423,110 (367,687, 493,911)
Female	35-39	87,208 (52,508, 134,180)	181,677 (124,715, 252,573)	1,648 (1,190, 1,905)	87,042 (62,848, 100,611)	15,924 (11,710, 21,904)	141,383 (113,792, 166,021)
Male	40-44	163,003 (108,851, 228,971)	363,722 (257,501, 494,398)	12,928 (11,477, 14,480)	616,873 (547,620, 690,956)	46,552 (36,813, 58,045)	685,460 (609,050, 762,582)
Female	40-44	118,879 (85,309, 158,894)	213,077 (147,620, 291,906)	2,809 (2,127, 3,269)	133,979 (101,436, 155,908)	23,502 (17,871, 29,349)	225,761 (177,103, 257,201)
Male	45-49	189,963 (131,555, 268,083)	569,893 (419,241, 746,051)	23,821 (21,861, 25,940)	1,020,531 (936,548, 1,111,343)	86,795 (63,778, 113,678)	1,231,859 (1,132,126, 1,350,172)
Female	45-49	230,711 (149,429, 313,582)	359,324 (250,510, 485,754)	6,317 (5,110, 7,074)	270,513 (218,866, 302,943)	45,035 (31,771, 60,495)	470,614 (382,900, 526,244)
Male	50-54	184,284 (115,520, 266,075)	747,001 (575,577, 972,260)	38,232 (35,476, 40,887)	1,457,791 (1,352,689, 1,559,017)	152,586 (116,223, 193,695)	1,898,190 (1,769,993, 2,024,054)
Female	50-54	308,366 (226,228, 390,079)	534,125 (381,918, 711,642)	11,849 (9,238, 13,264)	451,376 (351,934, 505,253)	83,320 (63,604, 107,153)	838,912 (681,370, 924,711)
Male	55-59	135,647 (86,096, 191,652)	754,322 (586,696, 963,052)	49,881 (46,384, 53,293)	1,675,871 (1,558,397, 1,790,567)	204,417 (145,549, 278,352)	2,288,001 (2,138,783, 2,428,485)
Female	55-59	288,222 (210,598, 379,836)	613,710 (432,206, 810,263)	17,032 (13,281, 19,128)	572,215 (446,250, 642,636)	114,461 (85,150, 154,417)	1,017,504 (823,963, 1,124,515)
Male	60-64	89,792 (58,419, 126,653)	660,636 (523,580, 819,199)	59,681 (55,199, 64,557)	1,712,446 (1,583,736, 1,852,186)	231,967 (176,353, 292,708)	2,503,038 (2,338,658, 2,671,110)
Female	60-64	179,991 (124,001, 234,427)	612,265 (447,423, 772,034)	25,054 (19,919, 28,300)	718,033 (570,827, 811,066)	133,140 (102,284, 171,415)	1,145,941 (889,750, 1,281,044)
Male	65-69	80,523 (56,045, 112,032)	759,614 (606,015, 924,058)	90,201 (83,004, 97,512)	2,195,842 (2,020,676, 2,373,737)	333,801 (224,331, 453,687)	3,486,174 (3,255,029, 3,723,967)

Female	65-69	106,029 (76,871, 139,619)	788,726 (592,815, 1,003,852)	49,598 (38,126, 55,730)	1,204,148 (925,677, 1,352,995)	206,743 (146,568, 282,440)	1,894,947 (1,522,059, 2,109,165)
Male	70-74	39,189 (23,398, 60,350)	579,712 (477,860, 696,065)	104,527 (96,645, 112,125)	2,092,985 (1,935,272, 2,244,761)	340,355 (258,375, 448,857)	3,482,830 (3,235,621, 3,750,811)
Female	70-74	35,475 (19,259, 57,493)	612,902 (468,409, 768,036)	72,035 (57,081, 80,988)	1,438,787 (1,140,087, 1,617,439)	220,714 (170,422, 280,730)	2,135,910 (1,707,354, 2,387,658)
Male	75-79	9,665 (5,964, 14,294)	381,766 (318,912, 455,275)	119,464 (109,873, 128,696)	1,903,925 (1,751,142, 2,051,124)	307,216 (233,275, 398,979)	3,026,094 (2,797,168, 3,242,250)
Female	75-79	9,470 (5,440, 14,475)	419,982 (309,983, 525,065)	100,251 (80,284, 112,657)	1,592,632 (1,275,393, 1,789,749)	217,702 (164,425, 283,230)	2,134,840 (1,699,510, 2,385,518)
Male	≥80	1,850 (1,048, 3,010)	419,938 (357,110, 496,259)	363,495 (312,765, 404,949)	3,862,268 (3,350,391, 4,297,212)	517,394 (436,470, 616,979)	4,390,960 (3,812,040, 4,848,099)
Female	≥80	2,295 (1,263, 3,790)	484,751 (333,393, 627,965)	454,878 (342,026, 527,522)	4,655,403 (3,523,499, 5,405,258)	490,306 (418,921, 570,694)	4,286,145 (3,192,659, 5,060,933)

Note: Values are point estimates (95% uncertainty intervals). CHD, coronary heart disease. T2D, type 2 diabetes. DALY, disability-adjusted life-year. YLL, year of life lost. Data were sourced from the GBD Results Tool for China in calendar year 2020.

Table S7. Female population, age-specific fertility rates, and expected live births used in the national offspring-IQ model, China, 2020.

Maternal age group, years	Female population	Age-specific fertility rate per 1,000 women	Annual live-birth probability	Expected live births
15-19	33,812,916	6.07	0.00607	205,244
20-24	35,451,003	55.22	0.05522	1,957,604
25-29	44,085,147	98.98	0.09898	4,363,548
30-34	60,654,565	65.05	0.06505	3,945,579
35-39	48,516,962	26.91	0.02691	1,305,591
40-44	45,726,258	6.34	0.00634	289,904
45-49	56,409,349	1.61	0.00161	90,819

Note: Expected live births were calculated as the female population multiplied by the age-specific fertility rate divided by 1,000.

Female population: GBD Results Tool, calendar year 2020. Age-specific fertility rates: China Population Census Yearbook 2020.

Table S8. Number of participants included in the exposure model for each of the 18 surveyed provinces.

Surveyed province	Participants, n
Beijing	972
Hebei	1,769
Inner Mongolia	1,742
Liaoning	1,416
Heilongjiang	1,909
Jiangsu	1,747
Zhejiang	1,907
Fujian	1,753
Jiangxi	2,047
Shandong	2,496
Henan	2,131
Hubei	3,100
Guangdong	1,283
Chongqing	1,587
Guizhou	1,439
Yunnan	1,585
Shaanxi	1,941
Gansu	1,527

Note: Province-specific exposure distributions were constructed from the individual-level dietary records of participants in each surveyed province. Detailed intake percentiles are not presented because the model used the complete observed distribution, including zero intakes and positive amounts.

Table S9. Modeled baseline burden and age-standardized burden rates in the 18 surveyed provinces for the population aged 15 years or older, China, 2020.

Panel A. Colorectal cancer, non-cardia stomach cancer, and Type 2 diabetes

Province	Population aged ≥15 years	CRC DALYs	CRC ASR	Non-cardia stomach cancer DALYs	Non-cardia stomach cancer ASR	T2D DALYs	T2D ASR
Beijing	19,301,588	72,328 (57,778, 89,564)	394.7 (315.6, 488.8)	23,064 (17,318, 30,244)	126.9 (95.3, 166.5)	199,022 (154,305, 248,422)	1,062.0 (825.9, 1,322.6)
Chongqing	26,955,796	122,787 (98,952, 153,266)	414.4 (334.1, 517.0)	71,037 (52,611, 94,203)	237.5 (176.2, 315.4)	232,977 (188,108, 280,856)	809.3 (650.6, 979.1)
Fujian	33,514,861	153,194 (124,577, 189,731)	496.4 (403.6, 615.0)	133,703 (100,655, 175,743)	437.5 (329.2, 574.4)	291,206 (234,058, 355,136)	924.4 (745.8, 1,123.8)
Gansu	20,166,288	73,356 (61,116, 88,526)	366.9 (305.3, 443.2)	133,070 (101,427, 172,321)	663.9 (505.7, 858.7)	177,012 (144,509, 213,565)	886.7 (723.8, 1,069.5)
Guangdong	102,262,628	335,020 (275,628, 411,210)	420.5 (346.2, 516.2)	129,173 (98,849, 168,127)	166.5 (127.3, 216.2)	774,102 (600,448, 964,782)	917.2 (718.8, 1,133.4)
Guizhou	29,320,110	143,571 (117,486, 176,301)	529.3 (433.4, 649.6)	80,265 (60,931, 104,262)	298.5 (226.5, 387.8)	239,004 (194,694, 286,770)	874.5 (713.7, 1,047.5)
Hebei	59,521,267	270,725 (224,009, 329,931)	443.1 (366.4, 540.0)	305,815 (230,731, 398,470)	497.1 (374.9, 648.3)	671,582 (542,646, 811,390)	1,098.9 (886.7, 1,329.3)
Heilongjiang	28,563,622	152,712 (126,185, 185,406)	487.6 (402.3, 592.6)	98,911 (74,904, 130,074)	314.2 (237.5, 413.1)	358,601 (287,343, 436,037)	1,152.3 (921.4, 1,403.8)
Henan	76,376,565	278,479 (229,753, 342,598)	364.2 (300.8, 447.4)	398,079 (305,491, 511,975)	520.6 (399.4, 670.4)	749,430 (614,600, 895,085)	981.9 (804.6, 1,173.6)
Hubei	48,332,080	251,563 (208,959, 306,135)	492.6 (408.7, 599.9)	215,783 (165,199, 279,890)	419.0 (320.8, 543.3)	405,781 (331,387, 488,268)	801.5 (653.5, 965.8)
Inner Mongolia	20,671,482	94,372 (77,896, 115,636)	447.1 (368.3, 548.9)	65,213 (49,810, 84,789)	308.3 (235.1, 400.2)	202,155 (158,167, 250,072)	953.6 (746.2, 1,179.3)
Jiangsu	71,856,068	370,645 (306,435, 451,060)	477.7 (395.4, 580.9)	430,216 (326,046, 558,511)	551.9 (418.7, 717.3)	798,786 (646,481, 963,065)	1,044.8 (843.5, 1,262.4)
Jiangxi	35,266,271	141,107 (117,773, 171,378)	416.0 (347.2, 505.4)	124,706 (95,814, 160,714)	368.4 (282.9, 474.5)	274,053 (220,723, 331,202)	807.1 (650.5, 974.8)
Liaoning	37,853,468	288,387 (236,703, 352,763)	663.6 (544.2, 812.3)	165,119 (124,755, 215,417)	375.6 (283.6, 490.6)	604,220 (497,778, 717,257)	1,414.6 (1,160.6, 1,685.5)
Shaanxi	32,676,794	104,963 (84,561, 131,135)	321.7 (258.9, 402.3)	126,007 (93,408, 167,414)	384.6 (285.1, 511.0)	270,548 (218,389, 327,028)	828.2 (668.4, 1,001.2)
Shandong	82,464,815	373,013 (307,938, 457,035)	420.9 (347.6, 515.4)	457,511 (347,151, 597,034)	514.0 (390.0, 671.4)	779,955 (622,667, 951,268)	889.3 (708.4, 1,086.9)
Yunnan	37,971,803	144,038 (120,240, 174,436)	422.3 (352.4, 511.6)	77,007 (58,697, 100,437)	228.6 (174.0, 297.6)	304,232 (247,999, 364,249)	875.0 (716.2, 1,044.0)
Zhejiang	55,885,807	263,634 (211,892, 327,154)	481.2 (386.6, 597.7)	179,749 (135,417, 235,701)	328.5 (247.6, 430.2)	455,140 (360,342, 557,754)	827.1 (655.6, 1,012.5)

Note: Values are presented as point estimates (95% uncertainty intervals). Age-standardized rates (ASRs) are expressed per 100,000 population aged 15 years or older. Provincial baseline disease burdens for colorectal cancer, non-cardia gastric cancer, type 2 diabetes, fatal coronary heart disease, and stroke in 2020 were unavailable. Therefore, province-specific disease burden rate ratios relative to the national level were calculated based on the 2017 provincial disease burden estimates for China reported by Zhou et al.[8]. These ratios were assumed to remain stable from 2017 to 2020 and were applied to the corresponding national age-specific disease burden rates for China in 2020 from the GBD Results Tool. The estimated provincial age-specific burden rates were then combined with provincial age-specific population data from the Seventh National Population Census to derive baseline disease burdens in 2020. The baseline burden of non-cardia gastric cancer was estimated as 57% of the total gastric cancer burden based on the 2019 China Cancer Registry Annual Report[7]. ASR, age-standardized rate. CRC, colorectal cancer. DALY, disability-adjusted life-year. T2D, type 2 diabetes.

Table S9. Modeled baseline burden and age-standardized burden rates in the 18 surveyed provinces for the population aged 15 years or older, China, 2020.

Panel B. Fatal ischemic heart disease and stroke

Province	Population aged ≥15 years	Fatal CHD YLLs	Fatal CHD ASR	Stroke DALYs	Stroke ASR
Beijing	19,301,588	304,454 (248,737, 361,928)	1,639.6 (1,342.3, 1,946.1)	335,023 (283,033, 387,256)	1,832.0 (1,550.8, 2,114.4)
Chongqing	26,955,796	469,728 (382,501, 561,826)	1,522.8 (1,239.8, 1,821.9)	820,952 (684,712, 962,432)	2,654.8 (2,213.6, 3,113.2)
Fujian	33,514,861	381,935 (315,370, 452,501)	1,264.2 (1,044.0, 1,497.2)	594,341 (507,560, 681,504)	1,980.5 (1,691.6, 2,270.1)
Gansu	20,166,288	496,318 (411,097, 582,819)	2,587.0 (2,136.0, 3,044.6)	664,164 (566,849, 763,407)	3,407.9 (2,900.4, 3,925.1)
Guangdong	102,262,628	1,275,596 (1,056,394, 1,503,558)	1,667.7 (1,382.4, 1,963.2)	1,361,775 (1,163,104, 1,564,644)	1,807.4 (1,545.1, 2,073.9)
Guizhou	29,320,110	488,665 (400,014, 579,955)	1,801.9 (1,475.5, 2,137.9)	1,164,858 (993,057, 1,332,590)	4,297.0 (3,664.9, 4,913.8)
Hebei	59,521,267	2,010,621 (1,667,770, 2,359,916)	3,379.9 (2,800.5, 3,970.5)	2,946,274 (2,534,353, 3,358,109)	4,880.6 (4,193.3, 5,568.3)
Heilongjiang	28,563,622	1,328,650 (1,093,387, 1,573,231)	4,402.0 (3,617.0, 5,218.9)	1,438,084 (1,216,120, 1,662,415)	4,715.7 (3,983.2, 5,457.5)
Henan	76,376,565	2,708,854 (2,246,795, 3,191,403)	3,511.5 (2,915.9, 4,134.6)	3,448,811 (2,959,455, 3,933,601)	4,455.1 (3,826.4, 5,078.9)
Hubei	48,332,080	1,194,686 (994,084, 1,401,261)	2,375.9 (1,974.0, 2,789.8)	1,906,513 (1,629,735, 2,181,426)	3,754.9 (3,205.2, 4,301.3)
Inner Mongolia	20,671,482	732,143 (608,827, 859,314)	3,657.9 (3,033.8, 4,300.7)	732,374 (629,911, 837,310)	3,624.8 (3,110.8, 4,150.8)
Jiangsu	71,856,068	1,120,295 (931,898, 1,309,310)	1,383.8 (1,152.8, 1,615.9)	2,268,937 (1,951,155, 2,582,248)	2,820.5 (2,428.7, 3,207.4)
Jiangxi	35,266,271	665,821 (552,506, 786,632)	1,985.6 (1,647.3, 2,346.0)	948,937 (815,183, 1,085,937)	2,829.2 (2,430.1, 3,237.8)
Liaoning	37,853,468	1,730,417 (1,423,462, 2,048,817)	3,994.3 (3,284.1, 4,732.1)	2,001,988 (1,703,707, 2,306,945)	4,585.7 (3,900.8, 5,287.8)
Shaanxi	32,676,794	904,894 (735,988, 1,084,393)	2,830.0 (2,297.8, 3,395.0)	1,100,367 (923,170, 1,285,448)	3,410.8 (2,857.1, 3,988.9)
Shandong	82,464,815	2,862,005 (2,373,142, 3,369,719)	3,189.5 (2,647.1, 3,753.9)	2,992,577 (2,549,605, 3,438,050)	3,332.4 (2,841.3, 3,827.1)
Yunnan	37,971,803	694,119 (571,905, 823,033)	2,101.6 (1,730.4, 2,492.4)	1,096,781 (934,296, 1,268,763)	3,326.4 (2,832.5, 3,848.2)
Zhejiang	55,885,807	492,303 (405,256, 584,865)	900.8 (741.2, 1,070.3)	1,035,423 (885,202, 1,188,453)	1,906.3 (1,629.1, 2,188.1)

Note: Values are presented as point estimates (95% uncertainty intervals). Age-standardized rates (ASRs) are expressed per 100,000 population aged 15 years or older. Provincial baseline disease burdens for colorectal cancer, non-cardia gastric cancer, type 2 diabetes, fatal coronary heart disease, and stroke in 2020 were unavailable. Therefore, province-specific disease burden rate ratios relative to the national level were calculated based on the 2017 provincial disease burden estimates for China reported by Zhou et al.[8]. These ratios were assumed to remain stable from 2017 to 2020 and were applied to the corresponding national age-specific disease burden rates for China in 2020 from the GBD Results Tool. The estimated provincial age-specific burden rates were then combined with provincial age-specific population data from the Seventh National Population Census to derive baseline disease burdens in 2020. The baseline burden of non-cardia gastric cancer was estimated as 57% of the total gastric cancer burden based on the 2019 China Cancer Registry Annual Report[7]. ASR, age-standardized rate. DALY, disability-adjusted life-year. CHD, coronary heart disease.

Table S10. Age-specific fertility rates in the 18 surveyed provinces, China, 2020.

Province	Age-specific fertility rate (per 1,000 women)						
	15-19	20-24	25-29	30-34	35-39	40-44	45-49
Beijing	0.96	11.88	55.7	66.66	29.96	7.45	1.07
Hebei	4.3	62.27	104.87	60.29	22.16	4.99	1.3
Inner Mongolia	2.13	34.25	98.26	68.84	28.27	5.17	0.82
Liaoning	1.98	28.66	74.44	52.06	20.39	4.7	0.98
Heilongjiang	1.78	25.35	64.19	41.52	14.8	3.36	0.66
Jiangsu	3.68	41.66	86.7	50.36	19.24	4.3	1.58
Zhejiang	6.21	41.5	80.4	51.57	22.29	5.48	1.43
Fujian	5.98	57.01	108.14	68.72	27.87	6.3	1.66
Jiangxi	5	70.4	110.7	63.74	23.61	5.57	2.41
Shandong	3.16	50.7	107.41	76.56	37.05	9.49	1.85
Henan	4.74	62.57	109.07	71.11	26.82	6.35	1.83
Hubei	2.35	40.01	96.98	62.64	25.01	5.33	1.59
Guangdong	5.83	52.53	101.29	71.06	31.54	8.13	1.97
Chongqing	3.68	50.29	95.37	59.8	23.02	4.4	1.11
Guizhou	24.6	115.88	142.47	88.45	38.85	11.25	2.27
Yunnan	18.09	80.69	110.42	70.43	31.17	8.12	2.15
Shaanxi	1.68	37.88	96.45	65.36	25.17	4.8	1.45
Gansu	11.14	82.47	131	78.28	27.2	5.41	1.47

Note: Age-specific fertility rates are expressed as live births per 1,000 women in the corresponding maternal age group. Data were sourced from China Population Census Yearbook 2020.

Table S11. Standard population and weights used for age standardization of provincial burden rates.

Age group, years	Total population	Standard age weight
15-19	72,684,140	0.062854
20-24	74,941,675	0.064806
25-29	91,847,332	0.079426
30-34	124,145,190	0.107355
35-39	99,012,932	0.085622
40-44	92,955,330	0.080384
45-49	114,224,887	0.098777
50-54	121,164,296	0.104778
55-59	101,400,786	0.087687
60-64	73,382,938	0.063458
65-69	74,005,560	0.063997
70-74	49,590,036	0.042883
75-79	31,238,849	0.027014
80+	35,800,835	0.030959

Note: The standard population was the Chinese population aged 15 years or older in 2020. The standard age weight for each age group was calculated as the population in that age group divided by the total population aged 15 years or older. Data were sourced from China Population Census Yearbook 2020.

Table S12. Survey participants by reported fish intake and availability of red and processed meat for replacement under the six alternative scenarios.

Participant category	S1 Current fish mix			S2 Optimized fish mix		
	40 g/day	**75 g/day**	**100 g/day**	**40 g/day**	**75 g/day**	**100 g/day**
1. Fish intake at or above target; no replacement required n(%)	7,647 (23.6%)	3,768 (11.6%)	2,545 (7.9%)	7,647 (23.6%)	3,768 (11.6%)	2,545 (7.9%)
2. Positive fish intake below target; sufficient meat n(%)	3,585 (11.1%)	5,985 (18.5%)	5,901 (18.2%)	3,585 (11.1%)	5,985 (18.5%)	5,901 (18.2%)
3. Positive fish intake below target; insufficient meat n(%)	506 (1.6%)	1,985 (6.1%)	3,292 (10.2%)	506 (1.6%)	1,985 (6.1%)	3,292 (10.2%)
4. No reported fish intake; sufficient meat n(%)	13,078 (40.4%)	8,693 (26.9%)	6,437 (19.9%)	13,078 (40.4%)	8,693 (26.9%)	6,437 (19.9%)
5. No reported fish intake; insufficient meat n(%)	7,535 (23.3%)	11,920 (36.8%)	14,176 (43.8%)	7,535 (23.3%)	11,920 (36.8%)	14,176 (43.8%)
Insufficient meat, subtotal (categories 3 + 5) n(%)	**8,041 (24.9%)**	**13,905 (43.0%)**	**17,468 (54.0%)**	**8,041 (24.9%)**	**13,905 (43.0%)**	**17,468 (54.0%)**
Additional fish not offset by meat reduction, mean g/day	6.6	18.6	30.9	6.6	18.6	30.9

Note: All percentages use the full analytic sample (N = 32,351) as the denominator. Fish intake refers to mean intake across valid dietary recall days; zero intake denotes no fish recorded during these days. Sufficient meat means that baseline red and processed meat combined could fully offset the fish required to reach the target. The insufficient-meat subtotal sums categories 3 and 5 and includes partial replacement and no meat available. S1, current fish-mix strategy; S2, optimized fish-mix strategy.

Table S13. Proportions of survey participants aged ≥15 years below the EPA and DHA reference level and exceeding the methylmercury tolerable weekly intake in the reference and alternative scenarios.

Scenario	EPA and DHA < 250 mg/day, n (%)	EPA and DHA ≥ 250 mg/day, n (%)	MeHg > 1.3 μg/kg bw/week, n (%)	MeHg ≤ 1.3 μg/kg bw/week, n (%)
Baseline	29,979 (92.7)	2,372 (7.3)	74 (0.23)	32,277 (99.77)
S1: 40 g/day	27,460 (84.9)	4,891 (15.1)	74 (0.23)	32,277 (99.77)
S1: 75 g/day	23,536 (72.8)	8,815 (27.2)	91 (0.28)	32,260 (99.72)
S1: 100 g/day	22,177 (68.6)	10,174 (31.4)	181 (0.56)	32,170 (99.44)
S2: 40 g/day	19,082 (59.0)	13,269 (41.0)	74 (0.23)	32,277 (99.77)
S2: 75 g/day	12,092 (37.4)	20,259 (62.6)	75 (0.23)	32,276 (99.77)
S2: 100 g/day	9,953 (30.8)	22,398 (69.2)	79 (0.24)	32,272 (99.76)

Note: S1 represents the current fish-mix strategy and S2 represents the optimized fish-mix strategy. bw, body weight; DHA, docosahexaenoic acid; EPA, eicosapentaenoic acid; MeHg, methylmercury.

Table S14. Model-projected differences in DALYs in China by outcome in each alternative scenario compared with the reference scenario (95% uncertainty intervals).

Health outcome	Current fish-mix strategy			Optimized fish-mix strategy		
	40 g/day	75 g/day	100 g/day	40 g/day	75 g/day	100 g/day
Red and processed meat-related CRC	-158,936.1 (-228,526.9, -90,783.3)	-284,229.9 (-413,301.2, -157,280.0)	-350,910.3 (-511,430.0, -188,979.8)	-158,936.1 (-228,526.9, -90,783.3)	-284,229.9 (-413,301.2, -157,280.0)	-350,910.3 (-511,430.0, -188,979.8)
Processed meat-related non-cardia stomach cancer	-60,545.6 (-98,950.5, -19,152.0)	-101,723.3 (-176,500.8, -30,990.6)	-118,656.3 (-205,548.8, -36,175.7)	-60,545.6 (-98,950.5, -19,152.0)	-101,723.3 (-176,500.8, -30,990.6)	-118,656.3 (-205,548.8, -36,175.7)
Red and processed meat-related T2D	-302,266.8 (-382,263.2, -214,865.8)	-531,715.0 (-678,304.9, -368,795.2)	-656,265.2 (-842,087.3, -451,046.7)	-302,266.8 (-382,263.2, -214,865.8)	-531,715.0 (-678,304.9, -368,795.2)	-656,265.2 (-842,087.3, -451,046.7)
EPA and DHA-related fatal CHD	-2,652,744.4 (-3,693,950.0, -1,755,993.1)	-4,360,026.3 (-5,985,488.4, -2,924,758.8)	-5,218,501.2 (-7,131,650.8, -3,514,927.0)	-5,796,840.0 (-7,871,644.7, -3,924,907.4)	-7,514,548.5 (-10,121,773.5, -5,126,614.0)	-8,269,177.8 (-11,091,748.8, -5,663,243.3)
EPA and DHA-related stroke	-711,232.1 (-1,040,092.7, -382,436.6)	-1,343,185.7 (-1,952,212.0, -727,051.3)	-1,722,217.1 (-2,497,226.1, -933,922.1)	-1,882,810.2 (-2,727,365.7, -1,020,344.9)	-3,109,516.6 (-4,473,005.7, -1,698,141.7)	-3,608,988.7 (-5,184,150.4, -1,974,466.0)
Fish intake-related offspring IQ	-727,238.2 (-991,073.2, -499,861.9)	-727,238.2 (-991,073.2, -499,861.9)	-727,238.2 (-991,073.2, -499,861.9)	-727,238.2 (-991,073.2, -499,861.9)	-727,238.2 (-991,073.2, -499,861.9)	-727,238.2 (-991,073.2, -499,861.9)
Methylmercury exposure-related offspring IQ	42,276.2 (14,780.7, 80,930.9)	93,537.4 (32,280.7, 183,303.2)	133,577.2 (45,796.4, 264,704.2)	24,172.5 (8,629.1, 45,235.7)	59,032.8 (20,617.3, 113,264.8)	85,648.9 (29,731.7, 166,059.9)
Total DALY difference	-4,555,172.4 (-6,002,320.5, -3,267,280.1)	-7,230,713.3 (-9,576,992.1, -5,100,016.4)	-8,636,834.6 (-11,448,793.7, -6,053,787.3)	-8,899,999.5 (-11,837,662.2, -6,129,944.9)	-12,199,556.0 (-16,220,484.0, -8,325,403.5)	-13,631,177.4 (-18,087,317.9, -9,298,931.9)

Note: Fatal CHD includes YLL only. Offspring IQ effects represent lifetime YLDs from the 2020 birth cohort. CRC, colorectal cancer. CHD, coronary heart disease. T2D, type 2 diabetes. DHA, docosahexaenoic acid. EPA, eicosapentaenoic acid. DALY, disability-adjusted life year. IQ, intelligence quotient. YLD, years lived with disability. YLL, years of life lost.

Table S15. Model-projected differences in the number of events by health outcome in each alternative scenario compared with the reference scenario (95% uncertainty intervals).

Health outcome	Current fish-mix strategy			Optimized fish-mix strategy		
	40 g/day	75 g/day	100 g/day	40 g/day	75 g/day	100 g/day
Red and processed meat-related CRC	-14,500.7 (-20,770.6, -8,401.0)	-25,642.1 (-37,302.6, -14,347.0)	-31,377.1 (-45,977.4, -17,221.7)	-14,500.7 (-20,770.6, -8,401.0)	-25,642.1 (-37,302.6, -14,347.0)	-31,377.1 (-45,977.4, -17,221.7)
Processed meat-related non-cardia stomach cancer	-3,740.2 (-6,205.4, -1,225.7)	-6,223.6 (-11,045.7, -1,971.4)	-7,222.8 (-12,849.2, -2,287.2)	-3,740.2 (-6,205.4, -1,225.7)	-6,223.6 (-11,045.7, -1,971.4)	-7,222.8 (-12,849.2, -2,287.2)
Red and processed meat-related T2D	-106,055.0 (-137,939.0, -75,902.9)	-187,166.0 (-245,413.2, -131,744.8)	-233,889.1 (-308,005.4, -162,992.0)	-106,055.0 (-137,939.0, -75,902.9)	-187,166.0 (-245,413.2, -131,744.8)	-233,889.1 (-308,005.4, -162,992.0)
EPA and DHA-related fatal CHD	-152,394.8 (-212,977.5, -102,216.8)	-249,304.8 (-343,805.0, -169,498.0)	-298,101.2 (-409,368.8, -203,525.4)	-332,734.7 (-454,146.6, -228,545.3)	-428,354.0 (-579,514.1, -296,207.4)	-471,870.9 (-636,099.4, -327,153.9)
EPA and DHA-related stroke	-72,861.4 (-106,960.6, -39,793.8)	-137,420.7 (-200,586.7, -75,462.5)	-175,979.7 (-256,461.1, -96,852.5)	-192,720.2 (-280,696.4, -106,078.9)	-317,895.2 (-460,084.8, -176,200.1)	-368,722.9 (-532,833.5, -204,700.0)
Fish intake-related offspring IQ <85	-523,261.7 (-620,295.4, -416,739.6)	-523,261.7 (-620,295.4, -416,739.6)	-523,261.7 (-620,295.4, -416,739.6)	-523,261.7 (-620,295.4, -416,739.6)	-523,261.7 (-620,295.4, -416,739.6)	-523,261.7 (-620,295.4, -416,739.6)
Methylmercury exposure-related offspring IQ <85	28,321.4 (10,228.5, 50,806.7)	62,250.0 (22,266.3, 112,946.9)	88,610.3 (31,535.3, 161,729.2)	16,411.3 (6,003.5, 28,989.8)	39,521.7 (14,263.6, 70,948.4)	57,161.4 (20,538.9, 103,154.4)

Note: CRC, non-cardia stomach cancer, T2D, and stroke are reported as incident cases. Fatal CHD is reported as deaths. CRC, colorectal cancer. CHD, coronary heart disease. T2D, type 2 diabetes. DHA, docosahexaenoic acid. EPA, eicosapentaenoic acid. IQ, intelligence quotient.

Table S16. Model-projected differences in the number of events per 100,000 Chinese residents aged ≥15 years by health outcome in each alternative scenario compared with the reference scenario (95% uncertainty intervals).

Health outcome	Current fish-mix strategy			Optimized fish-mix strategy		
	40 g/day	75 g/day	100 g/day	40 g/day	75 g/day	100 g/day
Red and processed meat-related CRC	-1.25 (-1.78, -0.72)	-2.20 (-3.20, -1.23)	-2.70 (-3.95, -1.48)	-1.25 (-1.78, -0.72)	-2.20 (-3.20, -1.23)	-2.70 (-3.95, -1.48)
Processed meat-related non-cardia stomach cancer	-0.32 (-0.53, -0.11)	-0.53 (-0.95, -0.17)	-0.62 (-1.10, -0.20)	-0.32 (-0.53, -0.11)	-0.53 (-0.95, -0.17)	-0.62 (-1.10, -0.20)
Red and processed meat-related T2D	-9.11 (-11.85, -6.52)	-16.08 (-21.08, -11.32)	-20.09 (-26.46, -14.00)	-9.11 (-11.85, -6.52)	-16.08 (-21.08, -11.32)	-20.09 (-26.46, -14.00)
EPA and DHA-related fatal CHD	-13.09 (-18.30, -8.78)	-21.42 (-29.53, -14.56)	-25.61 (-35.17, -17.48)	-28.58 (-39.01, -19.63)	-36.80 (-49.78, -25.45)	-40.54 (-54.64, -28.10)
EPA and DHA-related stroke	-6.26 (-9.19, -3.42)	-11.80 (-17.23, -6.48)	-15.12 (-22.03, -8.32)	-16.56 (-24.11, -9.11)	-27.31 (-39.52, -15.14)	-31.67 (-45.77, -17.58)
Fish intake-related offspring IQ <85	-44.95 (-53.29, -35.80)	-44.95 (-53.29, -35.80)	-44.95 (-53.29, -35.80)	-44.95 (-53.29, -35.80)	-44.95 (-53.29, -35.80)	-44.95 (-53.29, -35.80)
Methylmercury exposure-related offspring IQ <85	2.43 (0.88, 4.36)	5.35 (1.91, 9.70)	7.61 (2.71, 13.89)	1.41 (0.52, 2.49)	3.40 (1.23, 6.09)	4.91 (1.76, 8.86)

Note: CRC, non-cardia stomach cancer, T2D, and stroke are reported as incident cases. Fatal CHD is reported as deaths. CRC, colorectal cancer. CHD, coronary heart disease. T2D, type 2 diabetes. DHA, docosahexaenoic acid. EPA, eicosapentaenoic acid. IQ, intelligence quotient.

Table S17. Model-projected differences in DALYs by sex and outcome in China in each alternative scenario compared with the reference scenario (95% uncertainty intervals).

Health outcome	Sex	Current fish-mix strategy			Optimized fish-mix strategy		
		40 g/day	75 g/day	100 g/day	40 g/day	75 g/day	100 g/day
Red and processed meat-related CRC	Male	-102,952.7 (-147,942.7, -58,204.0)	-189,322.8 (-275,582.5, -104,288.7)	-234,816.3 (-342,734.8, -126,888.6)	-102,952.7 (-147,942.7, -58,204.0)	-189,322.8 (-275,582.5, -104,288.7)	-234,816.3 (-342,734.8, -126,888.6)
	Female	-56,271.6 (-81,500.2, -32,864.4)	-94,402.7 (-138,176.8, -52,913.6)	-115,122.2 (-168,205.8, -63,597.6)	-56,271.6 (-81,500.2, -32,864.4)	-94,402.7 (-138,176.8, -52,913.6)	-115,122.2 (-168,205.8, -63,597.6)
Processed meat-related non-cardia stomach cancer	Male	-42,455.0 (-65,667.3, -13,573.3)	-74,664.2 (-128,369.7, -22,656.6)	-87,344.2 (-150,139.9, -26,499.2)	-42,455.0 (-65,667.3, -13,573.3)	-74,664.2 (-128,369.7, -22,656.6)	-87,344.2 (-150,139.9, -26,499.2)
	Female	-17,992.1 (-33,209.4, -5,476.5)	-26,485.7 (-47,598.8, -8,181.7)	-30,616.3 (-54,870.7, -9,476.1)	-17,992.1 (-33,209.4, -5,476.5)	-26,485.7 (-47,598.8, -8,181.7)	-30,616.3 (-54,870.7, -9,476.1)
Red and processed meat-related T2D	Male	-159,873.0 (-204,201.1, -111,981.5)	-293,215.4 (-378,864.7, -202,576.3)	-365,558.6 (-473,063.1, -249,676.6)	-159,873.0 (-204,201.1, -111,981.5)	-293,215.4 (-378,864.7, -202,576.3)	-365,558.6 (-473,063.1, -249,676.6)
	Female	-141,986.6 (-183,235.5, -102,056.1)	-236,973.1 (-308,584.2, -167,625.0)	-290,263.1 (-379,877.7, -203,843.7)	-141,986.6 (-183,235.5, -102,056.1)	-236,973.1 (-308,584.2, -167,625.0)	-290,263.1 (-379,877.7, -203,843.7)
EPA and DHA-related fatal CHD	Male	-1,573,889.6 (-2,185,971.9, -1,046,487.1)	-2,597,387.6 (-3,551,919.0, -1,748,632.1)	-3,121,538.3 (-4,247,656.6, -2,109,710.5)	-3,455,221.2 (-4,674,037.7, -2,350,558.8)	-4,499,593.8 (-6,032,762.8, -3,082,561.7)	-4,952,864.7 (-6,608,549.0, -3,405,783.1)
	Female	-1,075,041.2 (-1,512,562.5, -704,808.4)	-1,756,400.0 (-2,440,265.9, -1,168,815.1)	-2,088,305.6 (-2,889,927.8, -1,396,740.4)	-2,327,174.7 (-3,204,386.3, -1,566,498.4)	-3,000,165.7 (-4,101,925.1, -2,033,765.4)	-3,305,682.2 (-4,502,386.9, -2,247,731.4)
EPA and DHA-related stroke	Male	-431,819.6 (-631,992.2, -235,212.1)	-818,264.4 (-1,189,360.0, -448,291.6)	-1,052,210.0 (-1,525,909.1, -577,646.8)	-1,152,699.3 (-1,669,537.8, -632,296.1)	-1,905,867.1 (-2,739,452.1, -1,052,561.3)	-2,211,240.7 (-3,173,293.7, -1,223,110.8)
	Female	-280,353.5 (-411,605.5, -149,712.9)	-527,134.2 (-769,323.3, -283,111.0)	-672,027.8 (-979,330.3, -361,835.0)	-731,037.6 (-1,065,202.4, -393,402.4)	-1,205,853.7 (-1,746,403.7, -653,972.9)	-1,400,958.6 (-2,025,996.8, -761,243.4)
Fish intake-related offspring IQ	Male	-383,064.9 (-522,037.1, -263,296.9)	-383,064.9 (-522,037.1, -263,296.9)	-383,064.9 (-522,037.1, -263,296.9)	-383,064.9 (-522,037.1, -263,296.9)	-383,064.9 (-522,037.1, -263,296.9)	-383,064.9 (-522,037.1, -263,296.9)
	Female	-344,173.3 (-469,036.0, -236,565.0)	-344,173.3 (-469,036.0, -236,565.0)	-344,173.3 (-469,036.0, -236,565.0)	-344,173.3 (-469,036.0, -236,565.0)	-344,173.3 (-469,036.0, -236,565.0)	-344,173.3 (-469,036.0, -236,565.0)

Methylmercury exposure-related offspring IQ	Male	22,268.5 (7,785.6, 42,629.5)	49,269.8 (17,003.5, 96,553.0)	70,360.4 (24,122.8, 139,430.1)	12,732.6 (4,545.3, 23,827.4)	31,094.9 (10,859.9, 59,661.0)	45,114.7 (15,660.9, 87,470.3)
	Female	20,007.7 (6,995.1, 38,301.4)	44,267.6 (15,277.2, 86,750.2)	63,216.9 (21,673.6, 125,274.1)	11,439.9 (4,083.8, 21,408.3)	27,937.9 (9,757.3, 53,603.8)	40,534.3 (14,070.9, 78,589.6)

Note: Fatal CHD includes YLL only. CRC, non-cardia stomach cancer, T2D, fatal CHD, and stroke are assigned according to the sex in which the disease burden occurs. Offspring IQ-related lifetime YLDs from the 2020 birth cohort are allocated using the live-birth sex distribution (male, 52.67% and female, 47.33%). CRC, colorectal cancer. CHD, coronary heart disease. T2D, type 2 diabetes. DHA, docosahexaenoic acid. EPA, eicosapentaenoic acid. DALY, disability-adjusted life year. IQ, intelligence quotient. YLD, years lived with disability. YLL, years of life lost.

Table S18. Model-projected differences in the number of events by health outcome and sex in each alternative scenario compared with the reference scenario (95% uncertainty intervals).

Health outcome	Sex	Current fish-mix strategy			Optimized fish-mix strategy		
		40 g/day	75 g/day	100 g/day	40 g/day	75 g/day	100 g/day
Red and processed meat-related CRC	Male	-9,277.0 (-13,295.1, -5,254.7)	-16,950.7 (-24,566.3, -9,336.6)	-20,810.6 (-30,337.5, -11,273.0)	-9,277.0 (-13,295.1, -5,254.7)	-16,950.7 (-24,566.3, -9,336.6)	-20,810.6 (-30,337.5, -11,273.0)
	Female	-5,262.3 (-7,562.5, -3,076.3)	-8,809.9 (-12,805.6, -5,014.7)	-10,729.4 (-15,630.5, -5,979.3)	-5,262.3 (-7,562.5, -3,076.3)	-8,809.9 (-12,805.6, -5,014.7)	-10,729.4 (-15,630.5, -5,979.3)
Processed meat-related non-cardia stomach cancer	Male	-2,614.3 (-4,191.3, -877.7)	-4,563.6 (-8,116.8, -1,450.1)	-5,323.3 (-9,448.5, -1,685.2)	-2,614.3 (-4,191.3, -877.7)	-4,563.6 (-8,116.8, -1,450.1)	-5,323.3 (-9,448.5, -1,685.2)
	Female	-1,123.4 (-2,066.1, -347.9)	-1,657.3 (-2,985.0, -521.3)	-1,908.8 (-3,424.3, -602.0)	-1,123.4 (-2,066.1, -347.9)	-1,657.3 (-2,985.0, -521.3)	-1,908.8 (-3,424.3, -602.0)
Red and processed meat-related T2D	Male	-53,881.2 (-70,067.4, -38,483.1)	-98,733.2 (-129,549.7, -69,040.7)	-124,978.7 (-164,306.4, -87,011.8)	-53,881.2 (-70,067.4, -38,483.1)	-98,733.2 (-129,549.7, -69,040.7)	-124,978.7 (-164,306.4, -87,011.8)
	Female	-52,015.1 (-68,732.9, -36,568.3)	-88,184.2 (-116,859.8, -60,656.4)	-108,875.3 (-145,132.2, -74,116.7)	-52,015.1 (-68,732.9, -36,568.3)	-88,184.2 (-116,859.8, -60,656.4)	-108,875.3 (-145,132.2, -74,116.7)
EPA and DHA-related fatal CHD	Male	-80,203.5 (-112,389.7, -53,417.0)	-132,202.3 (-182,612.5, -89,173.4)	-159,159.9 (-218,799.9, -107,852.3)	-177,979.6 (-242,989.0, -121,455.1)	-229,841.1 (-311,006.6, -157,983.8)	-252,543.3 (-340,065.4, -174,272.4)
	Female	-72,409.2 (-104,252.4, -48,242.2)	-117,623.3 (-166,933.1, -79,360.2)	-139,681.5 (-197,310.1, -94,517.7)	-155,567.9 (-218,552.5, -105,779.5)	-199,257.5 (-278,076.4, -136,524.6)	-219,942.1 (-305,738.4, -151,127.0)
EPA and DHA-related stroke	Male	-42,237.0 (-62,345.2, -23,019.0)	-79,951.3 (-117,275.0, -43,916.4)	-102,776.7 (-150,371.0, -56,574.1)	-113,087.0 (-164,956.4, -62,366.9)	-186,675.8 (-270,123.4, -103,627.7)	-216,251.6 (-312,628.7, -120,227.9)
	Female	-30,657.0 (-44,914.4, -16,919.4)	-57,536.0 (-83,939.5, -31,901.0)	-73,382.0 (-106,704.8, -40,757.4)	-79,895.7 (-116,053.8, -44,432.1)	-131,723.9 (-189,736.8, -73,664.5)	-153,058.1 (-220,047.3, -85,731.5)
Fish intake-related offspring IQ <85	Male	-275,622.5 (-326,733.9, -219,513.1)	-275,622.5 (-326,733.9, -219,513.1)	-275,622.5 (-326,733.9, -219,513.1)	-275,622.5 (-326,733.9, -219,513.1)	-275,622.5 (-326,733.9, -219,513.1)	-275,622.5 (-326,733.9, -219,513.1)
	Female	-247,639.2 (-293,561.5, -197,226.5)	-247,639.2 (-293,561.5, -197,226.5)	-247,639.2 (-293,561.5, -197,226.5)	-247,639.2 (-293,561.5, -197,226.5)	-247,639.2 (-293,561.5, -197,226.5)	-247,639.2 (-293,561.5, -197,226.5)

Methylmercury offspring IQ <85	exposure-related	Male	14,918.0 (5,387.8, 26,761.9)	32,789.5 (11,728.5, 59,493.6)	46,674.5 (16,610.9, 85,189.1)	8,644.5 (3,162.3, 15,270.1)	20,817.6 (7,513.2, 37,371.3)	30,109.2 (10,818.7, 54,335.5)
		Female	13,403.4 (4,840.8, 24,044.8)	29,460.5 (10,537.8, 53,453.3)	41,935.8 (14,924.4, 76,540.1)	7,766.8 (2,841.2, 13,719.7)	18,704.1 (6,750.4, 33,577.1)	27,052.3 (9,720.3, 48,818.9)

Note: CRC, non-cardia stomach cancer, T2D, and stroke are reported as incident cases. Fatal CHD is reported as deaths. The above five disease outcomes are assigned according to the sex in which the event occurs. Offspring with IQ <85 are allocated according to the 2020 live-birth sex distribution (male, 52.67% and female, 47.33%). CRC, colorectal cancer. CHD, coronary heart disease. T2D, type 2 diabetes. DHA, docosahexaenoic acid. EPA, eicosapentaenoic acid. IQ, intelligence quotient.

Table S19. Model-projected differences in the number of events per 100,000 Chinese residents aged ≥15 years of the corresponding sex by health outcome in each alternative scenario compared with the reference scenario (95% uncertainty intervals).

Health outcome	Sex	Current fish-mix strategy			Optimized fish-mix strategy		
		40 g/day	75 g/day	100 g/day	40 g/day	75 g/day	100 g/day
Red and processed meat-related CRC	Male	-1.57 (-2.25, -0.89)	-2.87 (-4.16, -1.58)	-3.53 (-5.14, -1.91)	-1.57 (-2.25, -0.89)	-2.87 (-4.16, -1.58)	-3.53 (-5.14, -1.91)
	Female	-0.92 (-1.32, -0.54)	-1.54 (-2.23, -0.87)	-1.87 (-2.72, -1.04)	-0.92 (-1.32, -0.54)	-1.54 (-2.23, -0.87)	-1.87 (-2.72, -1.04)
Processed meat-related non-cardia stomach cancer	Male	-0.44 (-0.71, -0.15)	-0.77 (-1.38, -0.25)	-0.90 (-1.60, -0.29)	-0.44 (-0.71, -0.15)	-0.77 (-1.38, -0.25)	-0.90 (-1.60, -0.29)
	Female	-0.20 (-0.36, -0.06)	-0.29 (-0.52, -0.09)	-0.33 (-0.60, -0.10)	-0.20 (-0.36, -0.06)	-0.29 (-0.52, -0.09)	-0.33 (-0.60, -0.10)
Red and processed meat-related T2D	Male	-9.13 (-11.87, -6.52)	-16.73 (-21.95, -11.70)	-21.17 (-27.83, -14.74)	-9.13 (-11.87, -6.52)	-16.73 (-21.95, -11.70)	-21.17 (-27.83, -14.74)
	Female	-9.06 (-11.98, -6.37)	-15.37 (-20.37, -10.57)	-18.97 (-25.29, -12.92)	-9.06 (-11.98, -6.37)	-15.37 (-20.37, -10.57)	-18.97 (-25.29, -12.92)
EPA and DHA-related fatal CHD	Male	-13.59 (-19.04, -9.05)	-22.40 (-30.94, -15.11)	-26.96 (-37.07, -18.27)	-30.15 (-41.16, -20.58)	-38.94 (-52.69, -26.76)	-42.78 (-57.61, -29.52)
	Female	-12.62 (-18.17, -8.41)	-20.50 (-29.09, -13.83)	-24.34 (-34.39, -16.47)	-27.11 (-38.09, -18.43)	-34.73 (-48.46, -23.79)	-38.33 (-53.28, -26.34)
EPA and DHA-related stroke	Male	-7.16 (-10.56, -3.90)	-13.54 (-19.87, -7.44)	-17.41 (-25.47, -9.58)	-19.16 (-27.95, -10.57)	-31.62 (-45.76, -17.56)	-36.63 (-52.96, -20.37)
	Female	-5.34 (-7.83, -2.95)	-10.03 (-14.63, -5.56)	-12.79 (-18.60, -7.10)	-13.92 (-20.23, -7.74)	-22.96 (-33.07, -12.84)	-26.67 (-38.35, -14.94)
Fish intake-related offspring IQ <85	Male	-46.69 (-55.35, -37.19)	-46.69 (-55.35, -37.19)	-46.69 (-55.35, -37.19)	-46.69 (-55.35, -37.19)	-46.69 (-55.35, -37.19)	-46.69 (-55.35, -37.19)
	Female	-43.16 (-51.16, -34.37)	-43.16 (-51.16, -34.37)	-43.16 (-51.16, -34.37)	-43.16 (-51.16, -34.37)	-43.16 (-51.16, -34.37)	-43.16 (-51.16, -34.37)
Methylmercury exposure-related offspring IQ <85	Male	2.53 (0.91, 4.53)	5.55 (1.99, 10.08)	7.91 (2.81, 14.43)	1.46 (0.54, 2.59)	3.53 (1.27, 6.33)	5.10 (1.83, 9.20)
	Female	2.34 (0.84, 4.19)	5.13 (1.84, 9.32)	7.31 (2.60, 13.34)	1.35 (0.50, 2.39)	3.26 (1.18, 5.85)	4.71 (1.69, 8.51)

Note: CRC, non-cardia stomach cancer, T2D, and stroke are reported as incident cases. Fatal CHD is reported as deaths. The above five disease outcomes are assigned according to the sex in which the event occurs. Offspring with IQ <85 are allocated according to the 2020 live-birth sex distribution (male, 52.67% and female, 47.33%). CRC, colorectal cancer. CHD, coronary heart disease. T2D, type 2 diabetes. DHA, docosahexaenoic acid. EPA, eicosapentaenoic acid. IQ, intelligence quotient.

Table S20. Model-projected differences in DALYs by age group in Chinese residents aged ≥15 years for five disease outcomes in each alternative scenario compared with the reference scenario (95% uncertainty intervals).

Health outcome	Age group, years	Current fish-mix strategy			Optimized fish-mix strategy		
		40 g/day	75 g/day	100 g/day	40 g/day	75 g/day	100 g/day
Red and processed meat-related CRC	15-19	-564.9 (-811.6, -324.9)	-959.1 (-1,395.7, -535.5)	-1,190.3 (-1,741.5, -646.5)	-564.9 (-811.6, -324.9)	-959.1 (-1,395.7, -535.5)	-1,190.3 (-1,741.5, -646.5)
	20-24	-734.1 (-1,092.4, -435.2)	-1,296.8 (-1,949.2, -751.4)	-1,623.2 (-2,460.4, -919.4)	-734.1 (-1,092.4, -435.2)	-1,296.8 (-1,949.2, -751.4)	-1,623.2 (-2,460.4, -919.4)
	25-29	-1,381.8 (-2,083.6, -803.4)	-2,533.2 (-3,833.0, -1,443.5)	-3,350.8 (-5,091.1, -1,903.2)	-1,381.8 (-2,083.6, -803.4)	-2,533.2 (-3,833.0, -1,443.5)	-3,350.8 (-5,091.1, -1,903.2)
	30-34	-3,464.8 (-5,112.2, -1,968.0)	-6,451.5 (-9,620.5, -3,511.2)	-8,148.5 (-12,294.0, -4,265.7)	-3,464.8 (-5,112.2, -1,968.0)	-6,451.5 (-9,620.5, -3,511.2)	-8,148.5 (-12,294.0, -4,265.7)
	35-39	-4,897.9 (-7,022.2, -2,956.5)	-8,723.5 (-12,689.4, -5,141.7)	-11,154.9 (-16,383.2, -6,450.9)	-4,897.9 (-7,022.2, -2,956.5)	-8,723.5 (-12,689.4, -5,141.7)	-11,154.9 (-16,383.2, -6,450.9)
	40-44	-6,571.7 (-9,577.4, -3,753.9)	-12,627.2 (-18,480.2, -6,994.6)	-15,807.8 (-23,352.9, -8,539.7)	-6,571.7 (-9,577.4, -3,753.9)	-12,627.2 (-18,480.2, -6,994.6)	-15,807.8 (-23,352.9, -8,539.7)
	45-49	-13,367.1 (-19,161.8, -7,777.1)	-24,662.1 (-35,769.4, -13,950.4)	-30,744.2 (-44,715.7, -16,772.3)	-13,367.1 (-19,161.8, -7,777.1)	-24,662.1 (-35,769.4, -13,950.4)	-30,744.2 (-44,715.7, -16,772.3)
	50-54	-18,092.2 (-26,250.1, -10,373.8)	-31,445.1 (-46,252.3, -17,282.7)	-39,232.0 (-58,148.5, -20,893.1)	-18,092.2 (-26,250.1, -10,373.8)	-31,445.1 (-46,252.3, -17,282.7)	-39,232.0 (-58,148.5, -20,893.1)
	55-59	-19,281.4 (-27,954.1, -10,838.4)	-35,201.2 (-51,315.5, -19,410.8)	-44,247.0 (-64,821.5, -23,974.1)	-19,281.4 (-27,954.1, -10,838.4)	-35,201.2 (-51,315.5, -19,410.8)	-44,247.0 (-64,821.5, -23,974.1)
	60-64	-16,348.6 (-24,098.9, -8,713.8)	-30,661.6 (-45,517.8, -16,180.9)	-39,110.4 (-58,399.5, -20,337.7)	-16,348.6 (-24,098.9, -8,713.8)	-30,661.6 (-45,517.8, -16,180.9)	-39,110.4 (-58,399.5, -20,337.7)
	65-69	-24,419.2 (-35,527.3, -13,592.1)	-40,769.4 (-59,911.9, -21,998.5)	-48,749.9 (-71,950.9, -25,471.0)	-24,419.2 (-35,527.3, -13,592.1)	-40,769.4 (-59,911.9, -21,998.5)	-48,749.9 (-71,950.9, -25,471.0)
	70-74	-16,933.1 (-23,809.4, -9,825.6)	-33,617.8 (-49,705.2, -18,638.1)	-40,933.9 (-60,169.8, -22,684.8)	-16,933.1 (-23,809.4, -9,825.6)	-33,617.8 (-49,705.2, -18,638.1)	-40,933.9 (-60,169.8, -22,684.8)
	75-79	-14,797.8 (-21,730.0, -8,320.2)	-24,150.8 (-35,912.6, -13,227.1)	-29,365.5 (-44,038.8, -15,509.7)	-14,797.8 (-21,730.0, -8,320.2)	-24,150.8 (-35,912.6, -13,227.1)	-29,365.5 (-44,038.8, -15,509.7)

	80+	-17,954.0 (-26,562.7, -10,318.1)	-30,029.1 (-44,394.8, -16,747.0)	-35,526.2 (-52,488.0, -19,596.0)	-17,954.0 (-26,562.7, -10,318.1)	-30,029.1 (-44,394.8, -16,747.0)	-35,526.2 (-52,488.0, -19,596.0)
Processed meat-related non-cardia stomach cancer	15-19	-80.5 (-151.5, -24.3)	-117.3 (-213.7, -36.3)	-135.0 (-249.0, -41.4)	-80.5 (-151.5, -24.3)	-117.3 (-213.7, -36.3)	-135.0 (-249.0, -41.4)
	20-24	-174.9 (-335.8, -52.0)	-281.2 (-533.6, -84.3)	-330.8 (-625.3, -99.7)	-174.9 (-335.8, -52.0)	-281.2 (-533.6, -84.3)	-330.8 (-625.3, -99.7)
	25-29	-320.2 (-512.6, -109.5)	-565.5 (-1,001.2, -182.6)	-706.9 (-1,344.1, -220.2)	-320.2 (-512.6, -109.5)	-565.5 (-1,001.2, -182.6)	-706.9 (-1,344.1, -220.2)
	30-34	-945.7 (-1,623.9, -314.6)	-1,556.6 (-2,888.2, -497.4)	-1,775.2 (-3,287.1, -570.4)	-945.7 (-1,623.9, -314.6)	-1,556.6 (-2,888.2, -497.4)	-1,775.2 (-3,287.1, -570.4)
	35-39	-1,566.6 (-2,840.0, -480.5)	-2,443.7 (-4,413.6, -757.7)	-2,983.3 (-5,397.8, -924.5)	-1,566.6 (-2,840.0, -480.5)	-2,443.7 (-4,413.6, -757.7)	-2,983.3 (-5,397.8, -924.5)
	40-44	-2,093.5 (-3,546.9, -675.4)	-3,758.0 (-6,937.9, -1,154.4)	-4,478.8 (-8,336.4, -1,369.8)	-2,093.5 (-3,546.9, -675.4)	-3,758.0 (-6,937.9, -1,154.4)	-4,478.8 (-8,336.4, -1,369.8)
	45-49	-4,568.2 (-7,429.2, -1,505.8)	-8,156.0 (-15,513.6, -2,482.2)	-9,643.0 (-17,656.5, -2,986.8)	-4,568.2 (-7,429.2, -1,505.8)	-8,156.0 (-15,513.6, -2,482.2)	-9,643.0 (-17,656.5, -2,986.8)
	50-54	-7,010.2 (-13,217.6, -2,145.0)	-10,959.6 (-20,539.8, -3,386.8)	-12,724.2 (-23,842.8, -3,936.8)	-7,010.2 (-13,217.6, -2,145.0)	-10,959.6 (-20,539.8, -3,386.8)	-12,724.2 (-23,842.8, -3,936.8)
	55-59	-6,829.1 (-11,088.3, -2,295.0)	-12,549.9 (-23,043.3, -3,877.5)	-14,781.6 (-27,411.0, -4,549.7)	-6,829.1 (-11,088.3, -2,295.0)	-12,549.9 (-23,043.3, -3,877.5)	-14,781.6 (-27,411.0, -4,549.7)
	60-64	-5,433.4 (-7,660.6, -1,971.6)	-10,287.2 (-17,019.2, -3,407.4)	-12,968.9 (-22,530.1, -4,180.6)	-5,433.4 (-7,660.6, -1,971.6)	-10,287.2 (-17,019.2, -3,407.4)	-12,968.9 (-22,530.1, -4,180.6)
	65-69	-10,647.6 (-20,465.3, -3,133.8)	-15,930.2 (-30,316.9, -4,757.8)	-17,233.5 (-31,808.7, -5,245.9)	-10,647.6 (-20,465.3, -3,133.8)	-15,930.2 (-30,316.9, -4,757.8)	-17,233.5 (-31,808.7, -5,245.9)
	70-74	-7,727.8 (-12,755.5, -2,438.7)	-15,013.7 (-28,810.7, -4,400.4)	-18,059.7 (-34,455.6, -5,318.1)	-7,727.8 (-12,755.5, -2,438.7)	-15,013.7 (-28,810.7, -4,400.4)	-18,059.7 (-34,455.6, -5,318.1)
	75-79	-6,053.0 (-11,283.6, -1,783.2)	-8,566.5 (-15,731.6, -2,547.3)	-9,525.3 (-17,429.6, -2,839.8)	-6,053.0 (-11,283.6, -1,783.2)	-8,566.5 (-15,731.6, -2,547.3)	-9,525.3 (-17,429.6, -2,839.8)
	80+	-6,393.2 (-10,898.6, -2,031.5)	-9,935.0 (-17,578.7, -3,076.2)	-11,395.8 (-20,459.9, -3,488.3)	-6,393.2 (-10,898.6, -2,031.5)	-9,935.0 (-17,578.7, -3,076.2)	-11,395.8 (-20,459.9, -3,488.3)
Red and processed meat-related T2D	15-19	-861.8 (-1,308.2, -558.9)	-1,456.5 (-2,228.4, -928.9)	-1,806.1 (-2,764.0, -1,141.9)	-861.8 (-1,308.2, -558.9)	-1,456.5 (-2,228.4, -928.9)	-1,806.1 (-2,764.0, -1,141.9)

	20-24	-4,104.7 (-6,098.1, -2,687.1)	-7,209.6 (-10,824.4, -4,679.2)	-9,001.3 (-13,626.2, -5,832.0)	-4,104.7 (-6,098.1, -2,687.1)	-7,209.6 (-10,824.4, -4,679.2)	-9,001.3 (-13,626.2, -5,832.0)
	25-29	-7,274.0 (-10,488.1, -4,721.8)	-13,251.8 (-19,203.3, -8,533.9)	-17,351.6 (-25,368.4, -11,086.0)	-7,274.0 (-10,488.1, -4,721.8)	-13,251.8 (-19,203.3, -8,533.9)	-17,351.6 (-25,368.4, -11,086.0)
	30-34	-13,833.6 (-19,559.6, -9,080.2)	-25,405.2 (-36,246.4, -16,412.4)	-31,691.6 (-45,505.6, -20,376.3)	-13,833.6 (-19,559.6, -9,080.2)	-25,405.2 (-36,246.4, -16,412.4)	-31,691.6 (-45,505.6, -20,376.3)
	35-39	-14,587.9 (-20,889.6, -9,736.3)	-25,816.5 (-37,094.1, -16,954.2)	-32,862.2 (-47,425.7, -21,389.6)	-14,587.9 (-20,889.6, -9,736.3)	-25,816.5 (-37,094.1, -16,954.2)	-32,862.2 (-47,425.7, -21,389.6)
	40-44	-15,945.6 (-22,166.4, -10,507.0)	-29,885.8 (-42,276.7, -19,569.6)	-37,476.0 (-53,026.3, -24,264.6)	-15,945.6 (-22,166.4, -10,507.0)	-29,885.8 (-42,276.7, -19,569.6)	-37,476.0 (-53,026.3, -24,264.6)
	45-49	-27,035.2 (-37,795.2, -19,102.1)	-48,815.5 (-68,551.6, -33,758.2)	-60,385.2 (-84,704.8, -41,387.3)	-27,035.2 (-37,795.2, -19,102.1)	-48,815.5 (-68,551.6, -33,758.2)	-60,385.2 (-84,704.8, -41,387.3)
	50-54	-34,917.1 (-47,161.8, -23,760.5)	-60,155.9 (-82,392.3, -40,789.0)	-74,732.5 (-102,618.2, -50,360.6)	-34,917.1 (-47,161.8, -23,760.5)	-60,155.9 (-82,392.3, -40,789.0)	-74,732.5 (-102,618.2, -50,360.6)
	55-59	-35,292.0 (-48,030.5, -24,257.0)	-62,636.0 (-86,107.7, -42,030.3)	-78,471.8 (-107,780.4, -51,902.7)	-35,292.0 (-48,030.5, -24,257.0)	-62,636.0 (-86,107.7, -42,030.3)	-78,471.8 (-107,780.4, -51,902.7)
	60-64	-28,594.3 (-39,666.1, -19,324.6)	-52,035.2 (-72,757.2, -34,761.3)	-65,636.3 (-92,233.1, -43,609.0)	-28,594.3 (-39,666.1, -19,324.6)	-52,035.2 (-72,757.2, -34,761.3)	-65,636.3 (-92,233.1, -43,609.0)
	65-69	-42,856.5 (-56,646.0, -29,144.1)	-70,586.7 (-93,990.6, -47,745.0)	-84,866.0 (-113,376.0, -56,103.8)	-42,856.5 (-56,646.0, -29,144.1)	-70,586.7 (-93,990.6, -47,745.0)	-84,866.0 (-113,376.0, -56,103.8)
	70-74	-27,161.0 (-35,657.3, -19,180.8)	-52,896.1 (-70,861.1, -36,646.5)	-64,717.2 (-86,725.8, -45,085.9)	-27,161.0 (-35,657.3, -19,180.8)	-52,896.1 (-70,861.1, -36,646.5)	-64,717.2 (-86,725.8, -45,085.9)
	75-79	-21,391.4 (-28,603.3, -14,848.0)	-34,474.7 (-46,215.4, -23,516.6)	-41,229.5 (-55,316.1, -27,757.2)	-21,391.4 (-28,603.3, -14,848.0)	-34,474.7 (-46,215.4, -23,516.6)	-41,229.5 (-55,316.1, -27,757.2)
	80+	-25,174.0 (-35,041.3, -17,748.1)	-41,753.1 (-58,153.8, -28,882.0)	-49,515.8 (-68,923.8, -34,142.5)	-25,174.0 (-35,041.3, -17,748.1)	-41,753.1 (-58,153.8, -28,882.0)	-49,515.8 (-68,923.8, -34,142.5)
EPA and DHA-related fatal CHD	15-19	-4,696.2 (-7,351.5, -2,826.3)	-7,809.9 (-12,048.6, -4,760.7)	-9,320.1 (-14,322.6, -5,700.2)	-10,307.4 (-15,813.9, -6,345.0)	-13,295.0 (-20,302.4, -8,254.7)	-14,646.1 (-22,277.9, -9,117.5)

	20-24	-8,081.2 (-11,834.5, -5,285.7)	-13,207.7 (-19,139.3, -8,714.4)	-15,799.1 (-22,813.5, -10,452.7)	-17,493.2 (-25,132.4, -11,649.4)	-22,862.0 (-32,607.7, -15,323.7)	-25,226.2 (-35,850.4, -16,984.9)
	25-29	-14,893.5 (-21,832.2, -9,772.3)	-23,834.0 (-34,517.7, -15,782.5)	-28,292.2 (-40,847.5, -18,784.0)	-30,276.9 (-43,572.2, -20,179.2)	-40,359.1 (-57,619.5, -27,080.3)	-44,550.5 (-63,383.6, -29,998.2)
	30-34	-31,032.7 (-44,131.1, -20,157.8)	-52,512.0 (-73,429.4, -34,469.4)	-63,233.8 (-87,998.9, -41,633.2)	-68,947.6 (-95,415.7, -45,622.2)	-91,239.1 (-125,250.9, -60,926.1)	-100,721.8 (-137,806.0, -67,561.0)
	35-39	-40,775.4 (-58,014.7, -26,826.2)	-68,557.7 (-96,573.4, -45,718.9)	-83,270.2 (-116,663.8, -55,697.8)	-90,296.0 (-125,888.8, -60,629.4)	-120,897.7 (-167,085.6, -81,739.8)	-134,089.9 (-184,447.8, -91,034.4)
	40-44	-62,566.6 (-88,029.1, -40,722.5)	-105,971.7 (-147,154.8, -70,063.0)	-128,309.2 (-177,471.3, -85,275.1)	-140,056.3 (-192,737.7, -93,580.4)	-186,908.8 (-255,291.1, -125,779.0)	-207,202.2 (-281,933.1, -139,953.8)
	45-49	-116,038.8 (-162,903.8, -76,694.5)	-190,884.2 (-263,824.2, -127,995.4)	-228,848.9 (-314,747.1, -154,112.2)	-250,724.3 (-342,833.8, -169,709.3)	-329,871.7 (-447,273.7, -225,125.9)	-364,233.3 (-491,541.6, -249,586.4)
	50-54	-164,565.7 (-231,958.2, -110,070.3)	-278,849.2 (-385,513.7, -189,187.5)	-334,220.7 (-459,689.5, -227,696.7)	-360,223.6 (-492,929.2, -246,462.1)	-481,174.6 (-652,171.9, -331,776.5)	-532,896.8 (-718,473.1, -368,702.3)
	55-59	-185,852.8 (-260,634.2, -122,949.0)	-313,534.3 (-432,544.0, -210,411.7)	-379,950.3 (-521,501.3, -256,180.3)	-420,488.6 (-573,253.7, -285,243.2)	-557,159.0 (-750,828.8, -380,478.2)	-617,629.0 (-828,129.7, -423,564.1)
	60-64	-214,781.7 (-303,529.9, -142,940.1)	-353,006.1 (-490,313.2, -237,769.1)	-423,221.1 (-585,028.5, -286,145.0)	-461,255.5 (-634,372.9, -313,355.6)	-609,849.0 (-831,283.7, -417,189.8)	-669,925.3 (-909,635.0, -459,987.8)
	65-69	-316,221.4 (-444,339.7, -208,362.5)	-511,200.8 (-707,476.6, -340,828.0)	-609,590.0 (-839,885.6, -408,235.6)	-685,771.4 (-939,073.7, -462,367.6)	-890,082.1 (-1,209,647.7, -604,159.3)	-969,803.2 (-1,313,089.8, -660,572.9)
	70-74	-328,219.5 (-461,840.6, -218,264.6)	-536,262.3 (-742,543.3, -363,930.5)	-638,616.1 (-878,890.5, -435,417.9)	-716,822.0 (-982,238.5, -491,598.8)	-917,291.3 (-1,248,798.2, -633,515.1)	-1,002,583.1 (-1,360,309.7, -694,697.0)
	75-79	-335,486.8 (-474,494.4, -220,492.1)	-553,723.5 (-769,647.0, -369,200.6)	-659,420.7 (-912,257.0, -441,638.3)	-717,591.3 (-987,697.5, -482,593.1)	-930,232.3 (-1,269,706.9, -630,715.0)	-1,022,807.6 (-1,390,015.3, -696,561.9)
	80+	-822,796.8 (-1,166,297.7, -545,343.7)	-1,336,724.0 (-1,877,882.8, -896,782.0)	-1,599,576.0 (-2,238,601.8, -1,077,332.6)	-1,805,186.6 (-2,508,910.4, -1,223,970.2)	-2,297,380.3 (-3,168,707.2, -1,567,243.4)	-2,532,521.2 (-3,486,173.7, -1,734,648.0)
EPA and DHA-related stroke	15-19	-1,622.3 (-2,464.8, -853.3)	-3,028.9 (-4,581.9, -1,604.2)	-3,890.2 (-5,877.1, -2,066.3)	-4,223.3 (-6,390.3, -2,244.8)	-6,978.5 (-10,495.2, -3,737.9)	-8,056.7 (-12,102.6, -4,323.1)

20-24	-2,167.3 (-3,285.3, -1,208.6)	-3,943.9 (-5,954.8, -2,212.5)	-5,003.6 (-7,544.6, -2,813.0)	-5,484.3 (-8,266.9, -3,083.1)	-8,981.5 (-13,456.5, -5,080.3)	-10,482.7 (-15,685.1, -5,940.2)
25-29	-3,886.4 (-5,893.0, -2,141.1)	-6,934.0 (-10,451.3, -3,820.8)	-8,691.2 (-13,069.6, -4,792.5)	-8,974.9 (-13,529.6, -4,962.0)	-14,831.6 (-22,198.4, -8,238.9)	-17,458.7 (-26,077.2, -9,714.9)
30-34	-6,770.8 (-10,132.7, -3,741.6)	-13,173.2 (-19,540.1, -7,322.5)	-17,207.6 (-25,442.9, -9,587.0)	-18,731.7 (-27,692.6, -10,444.2)	-31,318.9 (-45,926.9, -17,586.8)	-36,886.1 (-53,964.7, -20,748.1)
35-39	-9,225.8 (-13,684.8, -5,026.2)	-17,883.0 (-26,320.0, -9,809.3)	-23,487.3 (-34,470.4, -12,917.5)	-24,700.5 (-36,268.0, -13,579.1)	-42,327.2 (-61,634.3, -23,456.8)	-50,068.4 (-72,746.0, -27,803.6)
40-44	-15,110.8 (-22,217.3, -8,089.1)	-29,340.1 (-42,940.3, -15,841.7)	-38,109.4 (-55,686.3, -20,637.3)	-40,857.0 (-59,752.3, -22,151.6)	-69,429.6 (-100,927.0, -37,954.8)	-81,702.2 (-118,594.6, -44,757.5)
45-49	-30,692.7 (-45,097.2, -16,435.4)	-58,467.0 (-85,396.6, -31,536.0)	-75,250.4 (-109,683.1, -40,692.0)	-80,549.3 (-117,394.1, -43,524.4)	-134,710.3 (-194,885.7, -73,331.3)	-157,888.8 (-228,025.7, -86,137.9)
50-54	-45,856.9 (-67,611.4, -25,123.3)	-90,213.8 (-132,130.8, -49,791.5)	-117,087.7 (-171,094.8, -64,788.4)	-124,359.7 (-181,711.6, -68,792.1)	-209,922.4 (-304,704.3, -116,953.9)	-247,274.5 (-358,300.8, -138,005.4)
55-59	-52,730.2 (-77,598.3, -28,521.8)	-104,592.4 (-152,507.9, -56,911.5)	-135,491.8 (-197,089.3, -73,890.8)	-148,347.3 (-215,714.9, -80,922.2)	-250,563.5 (-361,559.1, -137,676.9)	-293,917.7 (-423,312.3, -161,777.7)
60-64	-64,348.6 (-95,135.2, -35,130.9)	-123,327.2 (-181,197.8, -67,820.8)	-158,937.6 (-233,043.1, -87,606.3)	-166,452.4 (-244,068.8, -91,578.4)	-281,356.7 (-409,808.5, -156,067.4)	-329,320.4 (-478,877.1, -183,045.4)
65-69	-103,503.8 (-152,823.2, -56,360.9)	-191,889.2 (-281,704.2, -105,173.8)	-244,088.9 (-357,606.1, -134,024.1)	-263,830.7 (-386,684.3, -144,706.2)	-441,083.8 (-641,601.7, -243,782.6)	-510,128.4 (-740,860.0, -282,474.9)
70-74	-104,614.4 (-155,226.9, -56,986.8)	-195,031.8 (-287,053.2, -107,097.1)	-250,264.6 (-367,800.6, -137,870.8)	-276,456.4 (-406,657.4, -152,104.0)	-449,726.9 (-655,602.6, -249,025.2)	-519,452.9 (-755,718.1, -288,054.5)
75-79	-98,760.4 (-146,212.1, -53,266.1)	-187,181.4 (-276,358.5, -101,434.0)	-240,986.0 (-354,824.2, -130,945.4)	-258,082.6 (-379,109.1, -140,389.1)	-426,217.0 (-623,059.7, -233,241.3)	-494,774.3 (-721,906.1, -271,157.8)
80+	-171,122.3 (-255,754.0, -93,216.4)	-316,552.1 (-470,073.6, -173,456.3)	-400,908.9 (-594,176.1, -220,013.8)	-457,838.5 (-677,451.6, -251,102.5)	-735,615.3 (-1,082,231.8, -406,421.9)	-844,995.0 (-1,241,182.3, -467,227.4)

Note: Fatal CHD includes YLL only. CRC, non-cardia stomach cancer, T2D, fatal CHD, and stroke are assigned according to the age group in which the disease burden occurs. CRC, colorectal cancer. CHD, coronary heart disease. T2D, type 2 diabetes. DHA, docosahexaenoic acid. EPA, eicosapentaenoic acid. DALY, disability-adjusted life year. YLL, years of life lost.

Table S21. Model-projected differences in DALYs by maternal age for fish intake-related and methylmercury exposure-related offspring IQ outcomes in each alternative scenario compared with the reference scenario (95% uncertainty intervals).

Health outcome	Age group, years	Current fish-mix strategy			Optimized fish-mix strategy		
		40 g/day	75 g/day	100 g/day	40 g/day	75 g/day	100 g/day
Fish intake-related offspring IQ	15-19	-12,703.9 (-17,312.4, -8,732.0)	-12,703.9 (-17,312.4, -8,732.0)	-12,703.9 (-17,312.4, -8,732.0)	-12,703.9 (-17,312.4, -8,732.0)	-12,703.9 (-17,312.4, -8,732.0)	-12,703.9 (-17,312.4, -8,732.0)
	20-24	-126,076.2 (-171,863.7, -86,657.0)	-126,076.2 (-171,863.7, -86,657.0)	-126,076.2 (-171,863.7, -86,657.0)	-126,076.2 (-171,863.7, -86,657.0)	-126,076.2 (-171,863.7, -86,657.0)	-126,076.2 (-171,863.7, -86,657.0)
	25-29	-259,992.6 (-354,331.7, -178,703.8)	-259,992.6 (-354,331.7, -178,703.8)	-259,992.6 (-354,331.7, -178,703.8)	-259,992.6 (-354,331.7, -178,703.8)	-259,992.6 (-354,331.7, -178,703.8)	-259,992.6 (-354,331.7, -178,703.8)
	30-34	-231,644.1 (-315,630.5, -159,219.3)	-231,644.1 (-315,630.5, -159,219.3)	-231,644.1 (-315,630.5, -159,219.3)	-231,644.1 (-315,630.5, -159,219.3)	-231,644.1 (-315,630.5, -159,219.3)	-231,644.1 (-315,630.5, -159,219.3)
	35-39	-74,076.0 (-100,937.0, -50,915.9)	-74,076.0 (-100,937.0, -50,915.9)	-74,076.0 (-100,937.0, -50,915.9)	-74,076.0 (-100,937.0, -50,915.9)	-74,076.0 (-100,937.0, -50,915.9)	-74,076.0 (-100,937.0, -50,915.9)
	40-44	-17,190.6 (-23,426.7, -11,815.8)	-17,190.6 (-23,426.7, -11,815.8)	-17,190.6 (-23,426.7, -11,815.8)	-17,190.6 (-23,426.7, -11,815.8)	-17,190.6 (-23,426.7, -11,815.8)	-17,190.6 (-23,426.7, -11,815.8)
	45-49	-5,554.7 (-7,571.1, -3,818.0)	-5,554.7 (-7,571.1, -3,818.0)	-5,554.7 (-7,571.1, -3,818.0)	-5,554.7 (-7,571.1, -3,818.0)	-5,554.7 (-7,571.1, -3,818.0)	-5,554.7 (-7,571.1, -3,818.0)
Methylmercury exposure-related offspring IQ	15-19	861.0 (299.3, 1,666.1)	1,858.1 (638.3, 3,672.9)	2,636.8 (899.1, 5,260.0)	498.3 (175.8, 941.3)	1,161.0 (403.8, 2,244.0)	1,662.2 (575.3, 3,241.6)
	20-24	7,413.3 (2,583.3, 14,288.6)	15,891.4 (5,474.5, 31,251.4)	22,376.0 (7,661.4, 44,424.3)	4,542.7 (1,603.8, 8,577.3)	10,480.8 (3,650.5, 20,219.4)	14,913.9 (5,168.9, 29,007.8)
	25-29	15,784.1 (5,512.3, 30,293.6)	34,584.7 (11,938.6, 67,750.6)	49,296.4 (16,909.1, 97,624.2)	8,791.1 (3,130.8, 16,483.1)	21,314.0 (7,438.6, 40,962.9)	30,916.7 (10,726.1, 60,018.8)
	30-34	12,659.5 (4,446.4, 24,019.9)	28,913.6 (9,987.0, 56,551.3)	41,649.8 (14,282.2, 82,512.9)	7,170.9 (2,585.2, 13,271.3)	18,348.2 (6,426.9, 34,982.8)	26,885.6 (9,350.6, 51,920.1)
	35-39	4,285.7 (1,495.8, 8,235.0)	9,478.8 (3,272.8, 18,561.8)	13,612.1 (4,671.2, 26,940.3)	2,459.1 (874.2, 4,617.8)	5,961.8 (2,080.3, 11,462.1)	8,716.1 (3,024.0, 16,920.2)
	40-44	959.3 (335.2, 1,838.5)	2,137.1 (736.8, 4,195.8)	3,050.6 (1,044.9, 6,052.8)	546.3 (195.0, 1,022.2)	1,336.9 (467.0, 2,564.4)	1,934.4 (671.8, 3,747.7)

	45-49	310.9 (108.5, 598.1)	673.7 (232.7, 1,319.1)	956.6 (328.4, 1,891.9)	181.2 (64.2, 341.0)	430.8 (150.2, 829.2)	620.0 (215.1, 1,203.7)

Note: Age refers to maternal age. Offspring IQ-related lifetime YLDs from the 2020 birth cohort are attributed according to maternal age. DHA, docosahexaenoic acid. EPA, eicosapentaenoic acid. DALY, disability-adjusted life year. IQ, intelligence quotient. YLD, years lived with disability.

Table S22. Model-projected differences in the number of events by age group for five disease outcomes in each alternative scenario compared with the reference scenario (95% uncertainty intervals).

Health outcome	Age group, years	Current fish-mix strategy			Optimized fish-mix strategy		
		40 g/day	75 g/day	100 g/day	40 g/day	75 g/day	100 g/day
Red and processed meat-related CRC	15-19	-27.0 (-41.0, -15.7)	-45.7 (-70.3, -25.2)	-56.6 (-87.5, -30.5)	-27.0 (-41.0, -15.7)	-45.7 (-70.3, -25.2)	-56.6 (-87.5, -30.5)
	20-24	-25.4 (-37.3, -15.4)	-44.9 (-67.3, -26.0)	-56.0 (-84.7, -32.2)	-25.4 (-37.3, -15.4)	-44.9 (-67.3, -26.0)	-56.0 (-84.7, -32.2)
	25-29	-43.4 (-65.6, -24.9)	-79.6 (-121.0, -44.8)	-105.8 (-162.1, -58.5)	-43.4 (-65.6, -24.9)	-79.6 (-121.0, -44.8)	-105.8 (-162.1, -58.5)
	30-34	-129.0 (-190.8, -75.9)	-241.0 (-361.6, -136.6)	-304.4 (-463.5, -167.6)	-129.0 (-190.8, -75.9)	-241.0 (-361.6, -136.6)	-304.4 (-463.5, -167.6)
	35-39	-210.2 (-305.1, -122.1)	-376.1 (-553.1, -213.3)	-481.5 (-717.5, -269.1)	-210.2 (-305.1, -122.1)	-376.1 (-553.1, -213.3)	-481.5 (-717.5, -269.1)
	40-44	-308.9 (-456.0, -174.4)	-595.1 (-888.1, -330.3)	-748.0 (-1,126.0, -406.2)	-308.9 (-456.0, -174.4)	-595.1 (-888.1, -330.3)	-748.0 (-1,126.0, -406.2)
	45-49	-717.3 (-1,060.5, -425.5)	-1,327.5 (-1,986.6, -767.2)	-1,647.7 (-2,488.7, -940.0)	-717.3 (-1,060.5, -425.5)	-1,327.5 (-1,986.6, -767.2)	-1,647.7 (-2,488.7, -940.0)
	50-54	-1,183.4 (-1,760.0, -675.3)	-2,060.9 (-3,086.6, -1,109.1)	-2,564.2 (-3,863.4, -1,340.4)	-1,183.4 (-1,760.0, -675.3)	-2,060.9 (-3,086.6, -1,109.1)	-2,564.2 (-3,863.4, -1,340.4)
	55-59	-1,451.0 (-2,150.7, -810.4)	-2,655.8 (-3,948.5, -1,443.5)	-3,324.8 (-5,002.9, -1,800.0)	-1,451.0 (-2,150.7, -810.4)	-2,655.8 (-3,948.5, -1,443.5)	-3,324.8 (-5,002.9, -1,800.0)
	60-64	-1,466.7 (-2,217.6, -798.1)	-2,753.5 (-4,163.5, -1,475.3)	-3,507.2 (-5,337.3, -1,852.3)	-1,466.7 (-2,217.6, -798.1)	-2,753.5 (-4,163.5, -1,475.3)	-3,507.2 (-5,337.3, -1,852.3)
	65-69	-2,515.1 (-3,740.6, -1,436.1)	-4,213.2 (-6,305.2, -2,320.0)	-5,033.1 (-7,601.0, -2,686.0)	-2,515.1 (-3,740.6, -1,436.1)	-4,213.2 (-6,305.2, -2,320.0)	-5,033.1 (-7,601.0, -2,686.0)
	70-74	-1,994.3 (-2,770.9, -1,183.2)	-3,964.0 (-5,764.5, -2,260.9)	-4,820.9 (-6,976.9, -2,752.8)	-1,994.3 (-2,770.9, -1,183.2)	-3,964.0 (-5,764.5, -2,260.9)	-4,820.9 (-6,976.9, -2,752.8)
	75-79	-1,938.3 (-2,899.6, -1,110.6)	-3,154.3 (-4,771.0, -1,728.8)	-3,807.5 (-5,812.7, -2,027.5)	-1,938.3 (-2,899.6, -1,110.6)	-3,154.3 (-4,771.0, -1,728.8)	-3,807.5 (-5,812.7, -2,027.5)
	80+	-2,405.3 (-3,617.9, -1,386.5)	-4,016.7 (-6,125.4, -2,256.4)	-4,744.4 (-7,226.8, -2,633.9)	-2,405.3 (-3,617.9, -1,386.5)	-4,016.7 (-6,125.4, -2,256.4)	-4,744.4 (-7,226.8, -2,633.9)
Processed meat-related non-cardia stomach cancer	15-19	-11.3 (-22.8, -3.3)	-16.5 (-32.2, -4.9)	-19.0 (-37.6, -5.6)	-11.3 (-22.8, -3.3)	-16.5 (-32.2, -4.9)	-19.0 (-37.6, -5.6)
	20-24	-7.2 (-13.9, -2.2)	-11.7 (-22.2, -3.6)	-13.8 (-26.2, -4.2)	-7.2 (-13.9, -2.2)	-11.7 (-22.2, -3.6)	-13.8 (-26.2, -4.2)

	25-29	-10.9 (-17.6, -3.7)	-19.1 (-34.1, -6.1)	-24.0 (-45.3, -7.4)	-10.9 (-17.6, -3.7)	-19.1 (-34.1, -6.1)	-24.0 (-45.3, -7.4)
	30-34	-35.3 (-61.1, -11.4)	-58.6 (-108.2, -18.2)	-67.1 (-123.1, -20.8)	-35.3 (-61.1, -11.4)	-58.6 (-108.2, -18.2)	-67.1 (-123.1, -20.8)
	35-39	-56.7 (-109.3, -17.3)	-88.5 (-170.3, -27.4)	-108.1 (-208.4, -33.5)	-56.7 (-109.3, -17.3)	-88.5 (-170.3, -27.4)	-108.1 (-208.4, -33.5)
	40-44	-83.7 (-146.0, -27.0)	-150.9 (-287.6, -46.5)	-180.1 (-345.5, -55.4)	-83.7 (-146.0, -27.0)	-150.9 (-287.6, -46.5)	-180.1 (-345.5, -55.4)
	45-49	-196.5 (-330.0, -62.5)	-353.8 (-693.8, -102.7)	-418.3 (-800.3, -123.6)	-196.5 (-330.0, -62.5)	-353.8 (-693.8, -102.7)	-418.3 (-800.3, -123.6)
	50-54	-327.4 (-648.7, -97.7)	-512.4 (-1,005.2, -154.3)	-594.8 (-1,166.2, -179.4)	-327.4 (-648.7, -97.7)	-512.4 (-1,005.2, -154.3)	-594.8 (-1,166.2, -179.4)
	55-59	-339.9 (-560.5, -112.2)	-625.7 (-1,182.7, -191.6)	-738.5 (-1,406.6, -224.6)	-339.9 (-560.5, -112.2)	-625.7 (-1,182.7, -191.6)	-738.5 (-1,406.6, -224.6)
	60-64	-305.5 (-456.0, -109.0)	-581.4 (-1,022.3, -188.0)	-733.0 (-1,355.3, -230.6)	-305.5 (-456.0, -109.0)	-581.4 (-1,022.3, -188.0)	-733.0 (-1,355.3, -230.6)
	65-69	-668.6 (-1,290.2, -199.1)	-1,004.6 (-1,911.5, -302.5)	-1,082.4 (-2,007.2, -333.3)	-668.6 (-1,290.2, -199.1)	-1,004.6 (-1,911.5, -302.5)	-1,082.4 (-2,007.2, -333.3)
	70-74	-555.4 (-938.7, -177.3)	-1,083.0 (-2,114.6, -319.8)	-1,302.6 (-2,532.8, -386.3)	-555.4 (-938.7, -177.3)	-1,083.0 (-2,114.6, -319.8)	-1,302.6 (-2,532.8, -386.3)
	75-79	-487.6 (-911.3, -144.0)	-689.7 (-1,269.9, -205.8)	-766.7 (-1,407.7, -229.5)	-487.6 (-911.3, -144.0)	-689.7 (-1,269.9, -205.8)	-766.7 (-1,407.7, -229.5)
	80+	-613.6 (-1,051.1, -201.4)	-953.1 (-1,704.0, -306.0)	-1,093.6 (-1,979.1, -347.3)	-613.6 (-1,051.1, -201.4)	-953.1 (-1,704.0, -306.0)	-1,093.6 (-1,979.1, -347.3)
Red and processed meat-related T2D	15-19	-7,429.4 (-10,307.6, -4,965.6)	-12,584.9 (-17,786.3, -8,274.7)	-15,581.6 (-22,047.7, -10,143.0)	-7,429.4 (-10,307.6, -4,965.6)	-12,584.9 (-17,786.3, -8,274.7)	-15,581.6 (-22,047.7, -10,143.0)
	20-24	-12,998.7 (-17,228.2, -9,381.7)	-22,784.6 (-30,103.4, -16,317.4)	-28,495.8 (-37,682.0, -20,350.7)	-12,998.7 (-17,228.2, -9,381.7)	-22,784.6 (-30,103.4, -16,317.4)	-28,495.8 (-37,682.0, -20,350.7)
	25-29	-8,632.8 (-12,237.9, -5,764.4)	-15,734.1 (-22,358.8, -10,395.4)	-20,714.3 (-29,487.4, -13,606.1)	-8,632.8 (-12,237.9, -5,764.4)	-15,734.1 (-22,358.8, -10,395.4)	-20,714.3 (-29,487.4, -13,606.1)
	30-34	-9,392.9 (-13,734.0, -6,221.4)	-17,276.9 (-25,611.9, -11,270.3)	-21,619.4 (-32,268.3, -13,900.3)	-9,392.9 (-13,734.0, -6,221.4)	-17,276.9 (-25,611.9, -11,270.3)	-21,619.4 (-32,268.3, -13,900.3)
	35-39	-7,899.4 (-12,196.4, -5,212.0)	-14,017.5 (-21,799.4, -9,131.1)	-17,885.3 (-27,924.1, -11,593.3)	-7,899.4 (-12,196.4, -5,212.0)	-14,017.5 (-21,799.4, -9,131.1)	-17,885.3 (-27,924.1, -11,593.3)
	40-44	-7,821.3 (-11,067.6, -5,215.1)	-14,578.5 (-20,868.2, -9,587.6)	-18,279.2 (-26,237.0, -11,918.1)	-7,821.3 (-11,067.6, -5,215.1)	-14,578.5 (-20,868.2, -9,587.6)	-18,279.2 (-26,237.0, -11,918.1)
	45-49	-12,493.5 (-18,129.7, -8,441.4)	-22,154.7 (-31,835.2, -14,847.0)	-27,116.5 (-38,755.9, -18,037.0)	-12,493.5 (-18,129.7, -8,441.4)	-22,154.7 (-31,835.2, -14,847.0)	-27,116.5 (-38,755.9, -18,037.0)

	50-54	-13,340.7 (-18,720.3, -8,989.8)	-22,816.7 (-32,423.2, -15,124.0)	-28,327.9 (-40,250.9, -18,771.2)	-13,340.7 (-18,720.3, -8,989.8)	-22,816.7 (-32,423.2, -15,124.0)	-28,327.9 (-40,250.9, -18,771.2)
	55-59	-11,267.1 (-15,805.0, -7,639.1)	-19,377.4 (-27,433.8, -12,942.0)	-24,272.4 (-34,468.9, -16,067.9)	-11,267.1 (-15,805.0, -7,639.1)	-19,377.4 (-27,433.8, -12,942.0)	-24,272.4 (-34,468.9, -16,067.9)
	60-64	-6,132.3 (-8,848.9, -4,006.3)	-10,904.0 (-15,828.3, -7,015.7)	-13,683.3 (-19,944.9, -8,752.0)	-6,132.3 (-8,848.9, -4,006.3)	-10,904.0 (-15,828.3, -7,015.7)	-13,683.3 (-19,944.9, -8,752.0)
	65-69	-5,183.2 (-7,484.5, -3,554.6)	-8,515.4 (-12,256.5, -5,721.1)	-10,239.4 (-14,820.7, -6,831.9)	-5,183.2 (-7,484.5, -3,554.6)	-8,515.4 (-12,256.5, -5,721.1)	-10,239.4 (-14,820.7, -6,831.9)
	70-74	-1,747.4 (-2,665.0, -1,124.1)	-3,409.0 (-5,314.5, -2,151.7)	-4,160.4 (-6,494.1, -2,632.5)	-1,747.4 (-2,665.0, -1,124.1)	-3,409.0 (-5,314.5, -2,151.7)	-4,160.4 (-6,494.1, -2,632.5)
	75-79	-520.3 (-766.3, -317.0)	-837.1 (-1,237.5, -512.1)	-1,004.3 (-1,489.6, -610.6)	-520.3 (-766.3, -317.0)	-837.1 (-1,237.5, -512.1)	-1,004.3 (-1,489.6, -610.6)
	80+	-117.7 (-187.5, -70.5)	-194.6 (-311.8, -115.0)	-230.4 (-370.9, -135.9)	-117.7 (-187.5, -70.5)	-194.6 (-311.8, -115.0)	-230.4 (-370.9, -135.9)
EPA and DHA-related fatal CHD	15-19	-64.5 (-98.8, -40.4)	-107.2 (-162.8, -67.7)	-127.8 (-193.9, -81.0)	-141.7 (-214.4, -90.0)	-183.0 (-276.0, -117.1)	-201.4 (-303.7, -129.2)
	20-24	-120.2 (-175.1, -80.5)	-196.8 (-282.4, -133.1)	-235.2 (-336.6, -159.7)	-260.0 (-370.9, -177.8)	-340.0 (-481.9, -234.0)	-375.6 (-531.4, -259.4)
	25-29	-240.3 (-345.6, -156.4)	-384.6 (-545.0, -252.6)	-456.9 (-644.7, -300.7)	-489.5 (-687.5, -322.6)	-651.9 (-909.0, -432.8)	-719.0 (-999.6, -479.5)
	30-34	-535.6 (-768.0, -353.6)	-905.2 (-1,277.6, -608.5)	-1,090.0 (-1,530.4, -736.1)	-1,188.6 (-1,663.0, -806.9)	-1,576.8 (-2,189.4, -1,078.7)	-1,741.6 (-2,410.7, -1,197.1)
	35-39	-779.2 (-1,104.8, -510.1)	-1,311.3 (-1,830.0, -871.5)	-1,590.6 (-2,211.3, -1,062.6)	-1,723.6 (-2,385.0, -1,157.1)	-2,308.3 (-3,161.3, -1,560.4)	-2,560.7 (-3,488.8, -1,735.8)
	40-44	-1,296.8 (-1,869.4, -844.4)	-2,196.3 (-3,119.2, -1,451.1)	-2,661.5 (-3,760.1, -1,765.6)	-2,904.3 (-4,072.9, -1,937.6)	-3,877.1 (-5,375.1, -2,605.5)	-4,299.6 (-5,926.4, -2,899.9)
	45-49	-2,706.0 (-3,805.5, -1,807.7)	-4,449.7 (-6,170.9, -3,010.2)	-5,333.3 (-7,365.1, -3,622.0)	-5,842.2 (-8,027.2, -3,985.7)	-7,690.3 (-10,479.3, -5,285.4)	-8,496.6 (-11,519.0, -5,858.1)
	50-54	-4,343.6 (-6,087.9, -2,868.6)	-7,348.7 (-10,123.4, -4,927.8)	-8,811.0 (-12,081.8, -5,930.0)	-9,492.7 (-12,965.7, -6,419.5)	-12,679.2 (-17,166.5, -8,642.3)	-14,035.2 (-18,914.2, -9,604.1)
	55-59	-5,525.8 (-7,844.1, -3,699.3)	-9,326.1 (-12,993.9, -6,321.3)	-11,303.1 (-15,666.1, -7,696.2)	-12,508.2 (-17,213.1, -8,569.2)	-16,569.4 (-22,564.6, -11,434.9)	-18,380.8 (-24,911.0, -12,732.7)

	60-64	-7,561.7 (-10,595.3, -4,997.6)	-12,412.3 (-17,167.5, -8,316.0)	-14,884.2 (-20,494.5, -10,011.9)	-16,223.5 (-22,271.2, -10,971.1)	-21,444.9 (-29,127.9, -14,615.2)	-23,551.5 (-31,851.3, -16,120.8)
	65-69	-12,988.7 (-18,374.0, -8,592.1)	-21,019.2 (-29,388.2, -14,057.8)	-25,065.6 (-34,915.5, -16,836.6)	-28,200.4 (-39,044.7, -19,066.6)	-36,624.7 (-50,324.1, -24,915.8)	-39,920.6 (-54,611.1, -27,250.2)
	70-74	-16,555.3 (-23,125.8, -11,077.8)	-27,108.1 (-37,357.7, -18,407.5)	-32,274.0 (-44,230.0, -22,000.7)	-36,260.0 (-49,332.9, -24,853.0)	-46,396.9 (-62,628.3, -32,031.8)	-50,704.1 (-68,206.4, -35,126.3)
	75-79	-21,109.4 (-29,965.5, -14,210.2)	-34,845.2 (-48,504.2, -23,759.7)	-41,493.1 (-57,499.7, -28,398.3)	-45,193.8 (-62,211.5, -31,039.8)	-58,627.0 (-79,936.4, -40,590.4)	-64,444.1 (-87,535.6, -44,805.3)
	80+	-78,572.3 (-112,914.8, -52,401.0)	-127,866.9 (-181,280.3, -86,278.1)	-152,970.1 (-215,705.7, -103,642.2)	-172,658.8 (-241,571.0, -117,751.3)	-219,854.2 (-305,412.7, -150,863.5)	-242,526.9 (-335,747.2, -167,069.2)
EPA and DHA-related stroke	15-19	-183.4 (-299.2, -95.3)	-341.4 (-556.7, -178.6)	-437.9 (-713.9, -229.6)	-474.5 (-771.0, -247.9)	-783.2 (-1,272.8, -413.3)	-904.1 (-1,467.3, -478.0)
	20-24	-241.4 (-382.8, -133.4)	-439.6 (-694.4, -244.2)	-557.1 (-879.6, -310.4)	-611.1 (-964.1, -340.3)	-1,001.3 (-1,570.5, -561.5)	-1,168.1 (-1,830.2, -656.2)
	25-29	-409.8 (-663.9, -216.5)	-732.4 (-1,189.0, -389.8)	-917.4 (-1,489.2, -490.1)	-948.6 (-1,535.1, -503.8)	-1,569.5 (-2,529.2, -838.8)	-1,847.4 (-2,974.4, -989.3)
	30-34	-666.4 (-1,036.5, -358.8)	-1,298.9 (-2,005.6, -703.4)	-1,697.3 (-2,613.2, -921.1)	-1,850.9 (-2,848.6, -1,005.4)	-3,099.0 (-4,741.6, -1,695.7)	-3,647.7 (-5,572.8, -1,999.1)
	35-39	-780.9 (-1,201.7, -420.1)	-1,510.2 (-2,316.9, -818.8)	-1,981.3 (-3,035.1, -1,075.7)	-2,082.9 (-3,191.9, -1,130.1)	-3,562.7 (-5,441.4, -1,945.8)	-4,214.2 (-6,426.6, -2,305.6)
	40-44	-1,163.6 (-1,801.0, -608.6)	-2,253.2 (-3,470.8, -1,184.1)	-2,925.4 (-4,497.7, -1,539.8)	-3,131.5 (-4,820.4, -1,646.4)	-5,331.0 (-8,134.3, -2,818.6)	-6,277.4 (-9,555.5, -3,322.9)
	45-49	-2,371.3 (-3,714.9, -1,277.0)	-4,521.8 (-7,042.6, -2,451.4)	-5,817.0 (-9,047.8, -3,162.8)	-6,230.1 (-9,695.2, -3,385.2)	-10,422.8 (-16,096.7, -5,707.0)	-12,217.7 (-18,824.5, -6,703.1)
	50-54	-3,978.6 (-6,151.7, -2,099.4)	-7,789.4 (-11,998.4, -4,150.6)	-10,101.5 (-15,528.3, -5,399.7)	-10,745.2 (-16,522.4, -5,734.0)	-18,108.3 (-27,662.6, -9,742.6)	-21,329.6 (-32,521.8, -11,494.7)
	55-59	-5,169.1 (-8,193.1, -2,806.7)	-10,163.9 (-16,143.8, -5,596.3)	-13,139.2 (-20,864.0, -7,264.6)	-14,375.2 (-22,812.9, -7,954.4)	-24,205.4 (-38,139.4, -13,503.4)	-28,372.0 (-44,530.9, -15,843.3)
	60-64	-6,521.9 (-10,177.5, -3,509.6)	-12,481.5 (-19,420.9, -6,758.9)	-16,091.0 (-24,991.2, -8,736.8)	-16,941.3 (-26,099.0, -9,184.3)	-28,610.6 (-43,959.7, -15,636.8)	-33,474.6 (-51,410.4, -18,335.5)
	65-69	-10,323.9 (-16,896.0, -5,364.7)	-19,144.8 (-31,287.5, -10,005.5)	-24,347.6 (-39,673.3, -12,746.3)	-26,298.6 (-42,604.7, -13,758.5)	-44,042.9 (-70,964.7, -23,160.9)	-50,953.2 (-82,015.4, -26,832.3)

	70-74	-10,482.1 (-16,380.8, -5,702.7)	-19,554.9 (-30,384.8, -10,755.1)	-25,126.8 (-38,958.8, -13,874.4)	-27,865.0 (-42,972.6, -15,416.5)	-45,346.1 (-69,416.0, -25,292.6)	-52,364.9 (-80,051.3, -29,267.5)
	75-79	-9,968.6 (-15,771.7, -5,500.0)	-18,951.0 (-29,659.8, -10,503.5)	-24,383.9 (-38,119.3, -13,537.5)	-26,058.5 (-40,917.8, -14,452.7)	-43,079.2 (-66,979.0, -24,045.9)	-50,006.5 (-77,642.3, -27,940.2)
	80+	-19,717.3 (-29,647.1, -10,991.1)	-36,500.0 (-54,553.6, -20,465.5)	-46,231.6 (-68,939.9, -25,967.9)	-52,778.2 (-78,638.8, -29,604.5)	-84,876.9 (-125,630.8, -47,783.0)	-97,474.0 (-144,020.9, -54,971.6)

Note: CRC, non-cardia stomach cancer, T2D, and stroke are reported as incident cases. Fatal CHD is reported as deaths. The five disease outcomes are assigned according to the age group in which the event occurs. CRC, colorectal cancer. CHD, coronary heart disease. T2D, type 2 diabetes. DHA, docosahexaenoic acid. EPA, eicosapentaenoic acid.

Table S23. Model-projected differences in the number of offspring with IQ <85 by maternal age group in each alternative scenario compared with the reference scenario (95% uncertainty intervals).

Health outcome	Age group, years	Current fish-mix strategy			Optimized fish-mix strategy		
		40 g/day	75 g/day	100 g/day	40 g/day	75 g/day	100 g/day
Fish intake-related offspring IQ <85	15-19	-9,140.7 (-10,835.6, -7,280.1)	-9,140.7 (-10,835.6, -7,280.1)	-9,140.7 (-10,835.6, -7,280.1)	-9,140.7 (-10,835.6, -7,280.1)	-9,140.7 (-10,835.6, -7,280.1)	-9,140.7 (-10,835.6, -7,280.1)
	20-24	-90,698.5 (-107,545.6, -72,217.1)	-90,698.5 (-107,545.6, -72,217.1)	-90,698.5 (-107,545.6, -72,217.1)	-90,698.5 (-107,545.6, -72,217.1)	-90,698.5 (-107,545.6, -72,217.1)	-90,698.5 (-107,545.6, -72,217.1)
	25-29	-187,064.3 (-221,762.9, -148,977.1)	-187,064.3 (-221,762.9, -148,977.1)	-187,064.3 (-221,762.9, -148,977.1)	-187,064.3 (-221,762.9, -148,977.1)	-187,064.3 (-221,762.9, -148,977.1)	-187,064.3 (-221,762.9, -148,977.1)
	30-34	-166,690.0 (-197,571.3, -132,775.1)	-166,690.0 (-197,571.3, -132,775.1)	-166,690.0 (-197,571.3, -132,775.1)	-166,690.0 (-197,571.3, -132,775.1)	-166,690.0 (-197,571.3, -132,775.1)	-166,690.0 (-197,571.3, -132,775.1)
	35-39	-53,302.6 (-63,179.3, -42,456.7)	-53,302.6 (-63,179.3, -42,456.7)	-53,302.6 (-63,179.3, -42,456.7)	-53,302.6 (-63,179.3, -42,456.7)	-53,302.6 (-63,179.3, -42,456.7)	-53,302.6 (-63,179.3, -42,456.7)
	40-44	-12,369.1 (-14,662.6, -9,851.3)	-12,369.1 (-14,662.6, -9,851.3)	-12,369.1 (-14,662.6, -9,851.3)	-12,369.1 (-14,662.6, -9,851.3)	-12,369.1 (-14,662.6, -9,851.3)	-12,369.1 (-14,662.6, -9,851.3)
	45-49	-3,996.3 (-4,738.1, -3,182.4)	-3,996.3 (-4,738.1, -3,182.4)	-3,996.3 (-4,738.1, -3,182.4)	-3,996.3 (-4,738.1, -3,182.4)	-3,996.3 (-4,738.1, -3,182.4)	-3,996.3 (-4,738.1, -3,182.4)
Methylmercury exposure-related offspring IQ <85	15-19	574.8 (206.8, 1,035.7)	1,233.6 (439.7, 2,246.7)	1,743.8 (618.3, 3,195.7)	335.4 (122.0, 596.3)	775.4 (279.1, 1,396.1)	1,107.5 (397.1, 2,003.4)
	20-24	4,957.2 (1,786.2, 8,916.0)	10,565.5 (3,774.4, 19,196.6)	14,832.5 (5,273.8, 27,099.0)	3,059.4 (1,112.7, 5,440.6)	7,006.3 (2,523.8, 12,604.4)	9,944.6 (3,569.3, 17,967.6)
	25-29	10,565.5 (3,813.5, 18,960.9)	23,017.2 (8,235.5, 41,741.8)	32,707.8 (11,645.0, 59,664.3)	5,955.7 (2,176.9, 10,524.6)	14,261.9 (5,145.3, 25,607.8)	20,625.2 (7,408.6, 37,228.5)
	30-34	8,505.4 (3,080.4, 15,217.3)	19,254.7 (6,890.3, 34,927.9)	27,635.0 (9,835.2, 50,446.7)	4,903.6 (1,804.0, 8,611.8)	12,306.1 (4,449.6, 22,052.3)	17,964.5 (6,462.6, 32,383.7)
	35-39	2,868.0 (1,034.6, 5,150.6)	6,309.1 (2,257.7, 11,440.0)	9,033.6 (3,217.4, 16,472.3)	1,664.1 (607.6, 2,945.1)	3,988.9 (1,438.8, 7,164.1)	5,814.8 (2,088.7, 10,496.0)
	40-44	642.4 (232.0, 1,152.7)	1,421.5 (508.1, 2,580.9)	2,022.6 (719.4, 3,694.0)	370.8 (135.7, 654.6)	895.1 (323.1, 1,606.2)	1,291.2 (464.1, 2,328.8)

	45-49	208.0 (75.0, 373.6)	448.4 (160.5, 812.8)	635.0 (226.3, 1,157.1)	122.4 (44.6, 216.8)	288.1 (103.9, 517.6)	413.6 (148.6, 746.4)

Note: Offspring with IQ <85 are allocated across maternal age groups according to the 2020 live-birth distribution. DHA, docosahexaenoic acid. EPA, eicosapentaenoic acid. IQ, intelligence quotient.

Table S24. Model-projected differences in the number of events per 100,000 Chinese residents aged ≥15 years in the corresponding age group for five disease outcomes in each alternative scenario compared with the reference scenario (95% uncertainty intervals).

Health outcome	Age group, years	Current fish-mix strategy			Optimized fish-mix strategy		
		40 g/day	75 g/day	100 g/day	40 g/day	75 g/day	100 g/day
Red and processed meat-related CRC	15-19	-0.04 (-0.06, -0.02)	-0.06 (-0.10, -0.03)	-0.08 (-0.12, -0.04)	-0.04 (-0.06, -0.02)	-0.06 (-0.10, -0.03)	-0.08 (-0.12, -0.04)
	20-24	-0.03 (-0.05, -0.02)	-0.06 (-0.09, -0.03)	-0.07 (-0.11, -0.04)	-0.03 (-0.05, -0.02)	-0.06 (-0.09, -0.03)	-0.07 (-0.11, -0.04)
	25-29	-0.05 (-0.07, -0.03)	-0.09 (-0.13, -0.05)	-0.11 (-0.18, -0.06)	-0.05 (-0.07, -0.03)	-0.09 (-0.13, -0.05)	-0.11 (-0.18, -0.06)
	30-34	-0.10 (-0.15, -0.06)	-0.19 (-0.29, -0.11)	-0.24 (-0.37, -0.13)	-0.10 (-0.15, -0.06)	-0.19 (-0.29, -0.11)	-0.24 (-0.37, -0.13)
	35-39	-0.21 (-0.31, -0.12)	-0.38 (-0.55, -0.21)	-0.48 (-0.72, -0.27)	-0.21 (-0.31, -0.12)	-0.38 (-0.55, -0.21)	-0.48 (-0.72, -0.27)
	40-44	-0.33 (-0.49, -0.19)	-0.64 (-0.95, -0.35)	-0.80 (-1.20, -0.43)	-0.33 (-0.49, -0.19)	-0.64 (-0.95, -0.35)	-0.80 (-1.20, -0.43)
	45-49	-0.62 (-0.92, -0.37)	-1.16 (-1.73, -0.67)	-1.43 (-2.17, -0.82)	-0.62 (-0.92, -0.37)	-1.16 (-1.73, -0.67)	-1.43 (-2.17, -0.82)
	50-54	-0.97 (-1.44, -0.55)	-1.69 (-2.53, -0.91)	-2.10 (-3.17, -1.10)	-0.97 (-1.44, -0.55)	-1.69 (-2.53, -0.91)	-2.10 (-3.17, -1.10)
	55-59	-1.42 (-2.11, -0.79)	-2.60 (-3.87, -1.41)	-3.26 (-4.90, -1.76)	-1.42 (-2.11, -0.79)	-2.60 (-3.87, -1.41)	-3.26 (-4.90, -1.76)
	60-64	-1.98 (-2.99, -1.08)	-3.72 (-5.62, -1.99)	-4.73 (-7.20, -2.50)	-1.98 (-2.99, -1.08)	-3.72 (-5.62, -1.99)	-4.73 (-7.20, -2.50)
	65-69	-3.38 (-5.02, -1.93)	-5.66 (-8.46, -3.11)	-6.76 (-10.20, -3.61)	-3.38 (-5.02, -1.93)	-5.66 (-8.46, -3.11)	-6.76 (-10.20, -3.61)
	70-74	-3.99 (-5.54, -2.37)	-7.93 (-11.53, -4.52)	-9.64 (-13.95, -5.51)	-3.99 (-5.54, -2.37)	-7.93 (-11.53, -4.52)	-9.64 (-13.95, -5.51)
	75-79	-6.17 (-9.22, -3.53)	-10.03 (-15.18, -5.50)	-12.11 (-18.49, -6.45)	-6.17 (-9.22, -3.53)	-10.03 (-15.18, -5.50)	-12.11 (-18.49, -6.45)
	80+	-6.65 (-10.00, -3.83)	-11.10 (-16.92, -6.23)	-13.11 (-19.97, -7.28)	-6.65 (-10.00, -3.83)	-11.10 (-16.92, -6.23)	-13.11 (-19.97, -7.28)
Processed meat-related non-cardia stomach cancer	15-19	-0.02 (-0.03, -0.00)	-0.02 (-0.04, -0.01)	-0.03 (-0.05, -0.01)	-0.02 (-0.03, -0.00)	-0.02 (-0.04, -0.01)	-0.03 (-0.05, -0.01)
	20-24	-0.01 (-0.02, -0.00)	-0.02 (-0.03, -0.00)	-0.02 (-0.03, -0.01)	-0.01 (-0.02, -0.00)	-0.02 (-0.03, -0.00)	-0.02 (-0.03, -0.01)
	25-29	-0.01 (-0.02, -0.00)	-0.02 (-0.04, -0.01)	-0.03 (-0.05, -0.01)	-0.01 (-0.02, -0.00)	-0.02 (-0.04, -0.01)	-0.03 (-0.05, -0.01)
	30-34	-0.03 (-0.05, -0.01)	-0.05 (-0.09, -0.01)	-0.05 (-0.10, -0.02)	-0.03 (-0.05, -0.01)	-0.05 (-0.09, -0.01)	-0.05 (-0.10, -0.02)
	35-39	-0.06 (-0.11, -0.02)	-0.09 (-0.17, -0.03)	-0.11 (-0.21, -0.03)	-0.06 (-0.11, -0.02)	-0.09 (-0.17, -0.03)	-0.11 (-0.21, -0.03)
	40-44	-0.09 (-0.16, -0.03)	-0.16 (-0.31, -0.05)	-0.19 (-0.37, -0.06)	-0.09 (-0.16, -0.03)	-0.16 (-0.31, -0.05)	-0.19 (-0.37, -0.06)
	45-49	-0.17 (-0.29, -0.05)	-0.31 (-0.60, -0.09)	-0.36 (-0.70, -0.11)	-0.17 (-0.29, -0.05)	-0.31 (-0.60, -0.09)	-0.36 (-0.70, -0.11)
	50-54	-0.27 (-0.53, -0.08)	-0.42 (-0.83, -0.13)	-0.49 (-0.96, -0.15)	-0.27 (-0.53, -0.08)	-0.42 (-0.83, -0.13)	-0.49 (-0.96, -0.15)

	55-59	-0.33 (-0.55, -0.11)	-0.61 (-1.16, -0.19)	-0.72 (-1.38, -0.22)	-0.33 (-0.55, -0.11)	-0.61 (-1.16, -0.19)	-0.72 (-1.38, -0.22)
	60-64	-0.41 (-0.62, -0.15)	-0.78 (-1.38, -0.25)	-0.99 (-1.83, -0.31)	-0.41 (-0.62, -0.15)	-0.78 (-1.38, -0.25)	-0.99 (-1.83, -0.31)
	65-69	-0.90 (-1.73, -0.27)	-1.35 (-2.57, -0.41)	-1.45 (-2.69, -0.45)	-0.90 (-1.73, -0.27)	-1.35 (-2.57, -0.41)	-1.45 (-2.69, -0.45)
	70-74	-1.11 (-1.88, -0.35)	-2.17 (-4.23, -0.64)	-2.61 (-5.07, -0.77)	-1.11 (-1.88, -0.35)	-2.17 (-4.23, -0.64)	-2.61 (-5.07, -0.77)
	75-79	-1.55 (-2.90, -0.46)	-2.19 (-4.04, -0.65)	-2.44 (-4.48, -0.73)	-1.55 (-2.90, -0.46)	-2.19 (-4.04, -0.65)	-2.44 (-4.48, -0.73)
	80+	-1.70 (-2.90, -0.56)	-2.63 (-4.71, -0.85)	-3.02 (-5.47, -0.96)	-1.70 (-2.90, -0.56)	-2.63 (-4.71, -0.85)	-3.02 (-5.47, -0.96)
Red and processed meat-related T2D	15-19	-10.17 (-14.11, -6.80)	-17.23 (-24.35, -11.33)	-21.33 (-30.18, -13.89)	-10.17 (-14.11, -6.80)	-17.23 (-24.35, -11.33)	-21.33 (-30.18, -13.89)
	20-24	-17.26 (-22.88, -12.46)	-30.25 (-39.97, -21.67)	-37.84 (-50.03, -27.02)	-17.26 (-22.88, -12.46)	-30.25 (-39.97, -21.67)	-37.84 (-50.03, -27.02)
	25-29	-9.33 (-13.22, -6.23)	-17.00 (-24.15, -11.23)	-22.38 (-31.86, -14.70)	-9.33 (-13.22, -6.23)	-17.00 (-24.15, -11.23)	-22.38 (-31.86, -14.70)
	30-34	-7.53 (-11.01, -4.99)	-13.85 (-20.53, -9.03)	-17.33 (-25.86, -11.14)	-7.53 (-11.01, -4.99)	-13.85 (-20.53, -9.03)	-17.33 (-25.86, -11.14)
	35-39	-7.92 (-12.23, -5.23)	-14.05 (-21.86, -9.16)	-17.93 (-28.00, -11.62)	-7.92 (-12.23, -5.23)	-14.05 (-21.86, -9.16)	-17.93 (-28.00, -11.62)
	40-44	-8.35 (-11.82, -5.57)	-15.57 (-22.29, -10.24)	-19.52 (-28.02, -12.73)	-8.35 (-11.82, -5.57)	-15.57 (-22.29, -10.24)	-19.52 (-28.02, -12.73)
	45-49	-10.88 (-15.78, -7.35)	-19.29 (-27.71, -12.93)	-23.61 (-33.74, -15.70)	-10.88 (-15.78, -7.35)	-19.29 (-27.71, -12.93)	-23.61 (-33.74, -15.70)
	50-54	-10.95 (-15.36, -7.38)	-18.73 (-26.61, -12.41)	-23.25 (-33.04, -15.41)	-10.95 (-15.36, -7.38)	-18.73 (-26.61, -12.41)	-23.25 (-33.04, -15.41)
	55-59	-11.04 (-15.48, -7.48)	-18.98 (-26.87, -12.68)	-23.78 (-33.76, -15.74)	-11.04 (-15.48, -7.48)	-18.98 (-26.87, -12.68)	-23.78 (-33.76, -15.74)
	60-64	-8.28 (-11.94, -5.41)	-14.72 (-21.36, -9.47)	-18.47 (-26.92, -11.81)	-8.28 (-11.94, -5.41)	-14.72 (-21.36, -9.47)	-18.47 (-26.92, -11.81)
	65-69	-6.96 (-10.05, -4.77)	-11.43 (-16.45, -7.68)	-13.74 (-19.89, -9.17)	-6.96 (-10.05, -4.77)	-11.43 (-16.45, -7.68)	-13.74 (-19.89, -9.17)
	70-74	-3.50 (-5.33, -2.25)	-6.82 (-10.63, -4.30)	-8.32 (-12.99, -5.27)	-3.50 (-5.33, -2.25)	-6.82 (-10.63, -4.30)	-8.32 (-12.99, -5.27)
	75-79	-1.66 (-2.44, -1.01)	-2.66 (-3.94, -1.63)	-3.19 (-4.74, -1.94)	-1.66 (-2.44, -1.01)	-2.66 (-3.94, -1.63)	-3.19 (-4.74, -1.94)
	80+	-0.33 (-0.52, -0.19)	-0.54 (-0.86, -0.32)	-0.64 (-1.02, -0.38)	-0.33 (-0.52, -0.19)	-0.54 (-0.86, -0.32)	-0.64 (-1.02, -0.38)
EPA and DHA-related fatal CHD	15-19	-0.09 (-0.14, -0.06)	-0.15 (-0.22, -0.09)	-0.18 (-0.27, -0.11)	-0.19 (-0.29, -0.12)	-0.25 (-0.38, -0.16)	-0.28 (-0.42, -0.18)
	20-24	-0.16 (-0.23, -0.11)	-0.26 (-0.37, -0.18)	-0.31 (-0.45, -0.21)	-0.35 (-0.49, -0.24)	-0.45 (-0.64, -0.31)	-0.50 (-0.71, -0.34)
	25-29	-0.26 (-0.37, -0.17)	-0.42 (-0.59, -0.27)	-0.49 (-0.70, -0.32)	-0.53 (-0.74, -0.35)	-0.70 (-0.98, -0.47)	-0.78 (-1.08, -0.52)
	30-34	-0.43 (-0.62, -0.28)	-0.73 (-1.02, -0.49)	-0.87 (-1.23, -0.59)	-0.95 (-1.33, -0.65)	-1.26 (-1.75, -0.86)	-1.40 (-1.93, -0.96)
	35-39	-0.78 (-1.11, -0.51)	-1.31 (-1.83, -0.87)	-1.59 (-2.22, -1.07)	-1.73 (-2.39, -1.16)	-2.31 (-3.17, -1.56)	-2.57 (-3.50, -1.74)

	40-44	-1.38 (-2.00, -0.90)	-2.35 (-3.33, -1.55)	-2.84 (-4.02, -1.89)	-3.10 (-4.35, -2.07)	-4.14 (-5.74, -2.78)	-4.59 (-6.33, -3.10)
	45-49	-2.36 (-3.31, -1.57)	-3.87 (-5.37, -2.62)	-4.64 (-6.41, -3.15)	-5.09 (-6.99, -3.47)	-6.69 (-9.12, -4.60)	-7.40 (-10.03, -5.10)
	50-54	-3.56 (-5.00, -2.35)	-6.03 (-8.31, -4.04)	-7.23 (-9.92, -4.87)	-7.79 (-10.64, -5.27)	-10.41 (-14.09, -7.09)	-11.52 (-15.52, -7.88)
	55-59	-5.41 (-7.68, -3.62)	-9.14 (-12.73, -6.19)	-11.07 (-15.35, -7.54)	-12.25 (-16.86, -8.39)	-16.23 (-22.10, -11.20)	-18.00 (-24.40, -12.47)
	60-64	-10.21 (-14.30, -6.74)	-16.75 (-23.17, -11.22)	-20.09 (-27.66, -13.51)	-21.89 (-30.06, -14.81)	-28.94 (-39.31, -19.72)	-31.78 (-42.99, -21.76)
	65-69	-17.44 (-24.66, -11.53)	-28.21 (-39.45, -18.87)	-33.65 (-46.87, -22.60)	-37.85 (-52.41, -25.59)	-49.16 (-67.55, -33.45)	-53.59 (-73.31, -36.58)
	70-74	-33.11 (-46.26, -22.16)	-54.22 (-74.72, -36.82)	-64.55 (-88.47, -44.00)	-72.53 (-98.67, -49.71)	-92.80 (-125.27, -64.07)	-101.42 (-136.42, -70.26)
	75-79	-67.14 (-95.31, -45.20)	-110.84 (-154.28, -75.57)	-131.98 (-182.90, -90.33)	-143.75 (-197.88, -98.73)	-186.48 (-254.26, -129.11)	-204.98 (-278.43, -142.52)
	80+	-217.10 (-311.99, -144.79)	-353.30 (-500.89, -238.39)	-422.66 (-596.01, -286.37)	-477.06 (-667.47, -325.35)	-607.47 (-843.87, -416.84)	-670.11 (-927.69, -461.62)
EPA and DHA-related stroke	15-19	-0.25 (-0.41, -0.13)	-0.47 (-0.76, -0.24)	-0.60 (-0.98, -0.31)	-0.65 (-1.06, -0.34)	-1.07 (-1.74, -0.57)	-1.24 (-2.01, -0.65)
	20-24	-0.32 (-0.51, -0.18)	-0.58 (-0.92, -0.32)	-0.74 (-1.17, -0.41)	-0.81 (-1.28, -0.45)	-1.33 (-2.09, -0.75)	-1.55 (-2.43, -0.87)
	25-29	-0.44 (-0.72, -0.23)	-0.79 (-1.28, -0.42)	-0.99 (-1.61, -0.53)	-1.02 (-1.66, -0.54)	-1.70 (-2.73, -0.91)	-2.00 (-3.21, -1.07)
	30-34	-0.53 (-0.83, -0.29)	-1.04 (-1.61, -0.56)	-1.36 (-2.09, -0.74)	-1.48 (-2.28, -0.81)	-2.48 (-3.80, -1.36)	-2.92 (-4.47, -1.60)
	35-39	-0.78 (-1.20, -0.42)	-1.51 (-2.32, -0.82)	-1.99 (-3.04, -1.08)	-2.09 (-3.20, -1.13)	-3.57 (-5.46, -1.95)	-4.23 (-6.44, -2.31)
	40-44	-1.24 (-1.92, -0.65)	-2.41 (-3.71, -1.26)	-3.12 (-4.80, -1.64)	-3.34 (-5.15, -1.76)	-5.69 (-8.69, -3.01)	-6.70 (-10.20, -3.55)
	45-49	-2.06 (-3.23, -1.11)	-3.94 (-6.13, -2.13)	-5.06 (-7.88, -2.75)	-5.42 (-8.44, -2.95)	-9.07 (-14.01, -4.97)	-10.64 (-16.39, -5.84)
	50-54	-3.27 (-5.05, -1.72)	-6.39 (-9.85, -3.41)	-8.29 (-12.74, -4.43)	-8.82 (-13.56, -4.71)	-14.86 (-22.70, -8.00)	-17.51 (-26.69, -9.43)
	55-59	-5.06 (-8.03, -2.75)	-9.96 (-15.81, -5.48)	-12.87 (-20.44, -7.12)	-14.08 (-22.35, -7.79)	-23.71 (-37.36, -13.23)	-27.79 (-43.62, -15.52)
	60-64	-8.80 (-13.74, -4.74)	-16.84 (-26.21, -9.12)	-21.72 (-33.73, -11.79)	-22.86 (-35.22, -12.39)	-38.61 (-59.33, -21.10)	-45.18 (-69.38, -24.75)
	65-69	-13.86 (-22.68, -7.20)	-25.70 (-42.00, -13.43)	-32.68 (-53.25, -17.11)	-35.30 (-57.19, -18.47)	-59.12 (-95.26, -31.09)	-68.40 (-110.09, -36.02)
	70-74	-20.97 (-32.76, -11.41)	-39.11 (-60.77, -21.51)	-50.26 (-77.92, -27.75)	-55.73 (-85.95, -30.84)	-90.70 (-138.84, -50.59)	-104.74 (-160.12, -58.54)
	75-79	-31.71 (-50.17, -17.49)	-60.28 (-94.34, -33.41)	-77.56 (-121.25, -43.06)	-82.89 (-130.15, -45.97)	-137.03 (-213.05, -76.49)	-159.06 (-246.96, -88.87)

	80+	-54.48 (-81.92, -30.37)	-100.85 (-150.73, -56.55)	-127.74 (-190.48, -71.75)	-145.83 (-217.28, -81.80)	-234.52 (-347.12, -132.03)	-269.33 (-397.94, -151.89)

Note: CRC, non-cardia stomach cancer, T2D, and stroke are reported as incident cases. Fatal CHD is reported as deaths. The five disease outcomes are assigned according to the age group in which the event occurs. CRC, colorectal cancer. CHD, coronary heart disease. T2D, type 2 diabetes. DHA, docosahexaenoic acid. EPA, eicosapentaenoic acid.

Table S25. Model-projected differences in the number of offspring with IQ <85 per 100,000 women in the corresponding maternal age group in each alternative scenario compared with the reference scenario (95% uncertainty intervals).

Health outcome or pathway	Age group, years	Current fish-mix strategy			Optimized fish-mix strategy		
		40 g/day	75 g/day	100 g/day	40 g/day	75 g/day	100 g/day
Fish intake-related offspring IQ <85	15-19	-27.03 (-32.05, -21.53)	-27.03 (-32.05, -21.53)	-27.03 (-32.05, -21.53)	-27.03 (-32.05, -21.53)	-27.03 (-32.05, -21.53)	-27.03 (-32.05, -21.53)
	20-24	-255.84 (-303.36, -203.71)	-255.84 (-303.36, -203.71)	-255.84 (-303.36, -203.71)	-255.84 (-303.36, -203.71)	-255.84 (-303.36, -203.71)	-255.84 (-303.36, -203.71)
	25-29	-424.33 (-503.03, -337.93)	-424.33 (-503.03, -337.93)	-424.33 (-503.03, -337.93)	-424.33 (-503.03, -337.93)	-424.33 (-503.03, -337.93)	-424.33 (-503.03, -337.93)
	30-34	-274.82 (-325.73, -218.90)	-274.82 (-325.73, -218.90)	-274.82 (-325.73, -218.90)	-274.82 (-325.73, -218.90)	-274.82 (-325.73, -218.90)	-274.82 (-325.73, -218.90)
	35-39	-109.86 (-130.22, -87.51)	-109.86 (-130.22, -87.51)	-109.86 (-130.22, -87.51)	-109.86 (-130.22, -87.51)	-109.86 (-130.22, -87.51)	-109.86 (-130.22, -87.51)
	40-44	-27.05 (-32.07, -21.54)	-27.05 (-32.07, -21.54)	-27.05 (-32.07, -21.54)	-27.05 (-32.07, -21.54)	-27.05 (-32.07, -21.54)	-27.05 (-32.07, -21.54)
	45-49	-7.08 (-8.40, -5.64)	-7.08 (-8.40, -5.64)	-7.08 (-8.40, -5.64)	-7.08 (-8.40, -5.64)	-7.08 (-8.40, -5.64)	-7.08 (-8.40, -5.64)
Methylmercury exposure-related offspring IQ <85	15-19	1.70 (0.61, 3.06)	3.65 (1.30, 6.64)	5.16 (1.83, 9.45)	0.99 (0.36, 1.76)	2.29 (0.83, 4.13)	3.28 (1.17, 5.93)
	20-24	13.98 (5.04, 25.15)	29.80 (10.65, 54.15)	41.84 (14.88, 76.44)	8.63 (3.14, 15.35)	19.76 (7.12, 35.55)	28.05 (10.07, 50.68)
	25-29	23.97 (8.65, 43.01)	52.21 (18.68, 94.68)	74.19 (26.41, 135.34)	13.51 (4.94, 23.87)	32.35 (11.67, 58.09)	46.78 (16.81, 84.45)
	30-34	14.02 (5.08, 25.09)	31.74 (11.36, 57.58)	45.56 (16.22, 83.17)	8.08 (2.97, 14.20)	20.29 (7.34, 36.36)	29.62 (10.65, 53.39)
	35-39	5.91 (2.13, 10.62)	13.00 (4.65, 23.58)	18.62 (6.63, 33.95)	3.43 (1.25, 6.07)	8.22 (2.97, 14.77)	11.99 (4.31, 21.63)
	40-44	1.40 (0.51, 2.52)	3.11 (1.11, 5.64)	4.42 (1.57, 8.08)	0.81 (0.30, 1.43)	1.96 (0.71, 3.51)	2.82 (1.02, 5.09)
	45-49	0.37 (0.13, 0.66)	0.79 (0.28, 1.44)	1.13 (0.40, 2.05)	0.22 (0.08, 0.38)	0.51 (0.18, 0.92)	0.73 (0.26, 1.32)

Note: Offspring with IQ <85 are expressed per 100,000 women in the corresponding maternal age group. DHA, docosahexaenoic acid. EPA, eicosapentaenoic acid. IQ, intelligence quotient.

Table S26. Sensitivity analysis of model-projected outcome-specific and total DALY differences per 100,000 people aged ≥15 years in China with fish increments limited to available red and processed meat (95% uncertainty intervals).

Health outcome	Current fish-mix strategy			Optimized fish-mix strategy		
	40 g/day	75 g/day	100 g/day	40 g/day	75 g/day	100 g/day
Red and processed meat-related CRC	-13.65 (-19.63, -7.80)	-24.42 (-35.50, -13.51)	-30.14 (-43.93, -16.23)	-13.65 (-19.63, -7.80)	-24.42 (-35.50, -13.51)	-30.14 (-43.93, -16.23)
Processed meat-related non-cardia stomach cancer	-5.20 (-8.50, -1.65)	-8.74 (-15.16, -2.66)	-10.19 (-17.66, -3.11)	-5.20 (-8.50, -1.65)	-8.74 (-15.16, -2.66)	-10.19 (-17.66, -3.11)
Red and processed meat-related T2D	-25.97 (-32.84, -18.46)	-45.68 (-58.27, -31.68)	-56.38 (-72.34, -38.75)	-25.97 (-32.84, -18.46)	-45.68 (-58.27, -31.68)	-56.38 (-72.34, -38.75)
EPA and DHA-related fatal CHD	-155.83 (-217.65, -102.69)	-232.26 (-319.86, -154.93)	-259.99 (-356.76, -173.96)	-360.38 (-490.07, -243.28)	-450.69 (-607.81, -306.16)	-483.62 (-650.11, -329.23)
EPA and DHA-related stroke	-40.93 (-59.97, -21.97)	-69.43 (-101.03, -37.43)	-82.14 (-119.32, -44.35)	-114.44 (-166.02, -61.93)	-173.95 (-250.82, -94.67)	-194.86 (-280.66, -106.19)
Fish intake-related offspring IQ	-50.99 (-69.60, -35.03)	-50.98 (-69.59, -35.03)	-51.05 (-69.68, -35.08)	-50.99 (-69.60, -35.03)	-50.98 (-69.59, -35.03)	-51.05 (-69.68, -35.08)
Methylmercury exposure-related offspring IQ	3.03 (1.06, 5.82)	5.52 (1.91, 10.77)	7.07 (2.43, 13.93)	1.77 (0.63, 3.32)	3.57 (1.25, 6.83)	4.60 (1.60, 8.89)
Total DALY difference	-289.66 (-376.14, -209.89)	-425.55 (-554.14, -307.93)	-482.20 (-627.87, -348.78)	-568.50 (-753.04, -395.88)	-749.37 (-990.73, -521.26)	-820.55 (-1,082.50, -571.54)

Note: Fatal CHD includes YLL only. Offspring IQ effects represent lifetime YLDs from the 2020 birth cohort. CRC, colorectal cancer. CHD, coronary heart disease. T2D, type 2 diabetes. DHA, docosahexaenoic acid. EPA, eicosapentaenoic acid. DALY, disability-adjusted life year. IQ, intelligence quotient. YLD, years lived with disability. YLL, years of life lost. Differences are alternative minus reference; negative values indicate health gains.

Table S27. Sensitivity analysis of model-projected outcome-specific and total DALY differences per 100,000 people aged ≥15 years in China with red meat replaced before processed meat (95% uncertainty intervals).

Health outcome	Current fish-mix strategy			Optimized fish-mix strategy		
	40 g/day	75 g/day	100 g/day	40 g/day	75 g/day	100 g/day
Red and processed meat-related CRC	-11.10 (-17.63, -4.44)	-21.60 (-33.01, -10.12)	-27.50 (-41.96, -13.01)	-11.10 (-17.63, -4.44)	-21.60 (-33.01, -10.12)	-27.50 (-41.96, -13.01)
Processed meat-related non-cardia stomach cancer	-1.03 (-1.26, -0.44)	-4.61 (-8.21, -1.36)	-6.11 (-10.64, -1.85)	-1.03 (-1.26, -0.44)	-4.61 (-8.21, -1.36)	-6.11 (-10.64, -1.85)
Red and processed meat-related T2D	-20.23 (-27.55, -12.62)	-39.39 (-52.43, -25.49)	-50.52 (-66.92, -32.89)	-20.23 (-27.55, -12.62)	-39.39 (-52.43, -25.49)	-50.52 (-66.92, -32.89)
EPA and DHA-related fatal CHD	-227.88 (-317.32, -150.85)	-374.54 (-514.17, -251.25)	-448.29 (-612.63, -301.94)	-497.97 (-676.20, -337.16)	-645.53 (-869.50, -440.39)	-710.35 (-952.82, -486.49)
EPA and DHA-related stroke	-61.10 (-89.35, -32.85)	-115.38 (-167.70, -62.46)	-147.94 (-214.52, -80.23)	-161.74 (-234.29, -87.65)	-267.12 (-384.25, -145.88)	-310.02 (-445.34, -169.61)
Fish intake-related offspring IQ	-62.47 (-85.14, -42.94)	-62.47 (-85.14, -42.94)	-62.47 (-85.14, -42.94)	-62.47 (-85.14, -42.94)	-62.47 (-85.14, -42.94)	-62.47 (-85.14, -42.94)
Methylmercury exposure-related offspring IQ	3.63 (1.27, 6.95)	8.04 (2.77, 15.75)	11.47 (3.93, 22.74)	2.08 (0.74, 3.89)	5.07 (1.77, 9.73)	7.36 (2.55, 14.27)
Total DALY difference	-379.58 (-503.53, -267.05)	-608.37 (-808.60, -424.47)	-729.41 (-970.86, -506.70)	-752.45 (-1,003.65, -513.14)	-1,036.23 (-1,381.04, -702.81)	-1,160.86 (-1,543.98, -786.91)

Note: Fatal CHD includes YLL only. Offspring IQ effects represent lifetime YLDs from the 2020 birth cohort. CRC, colorectal cancer. CHD, coronary heart disease. T2D, type 2 diabetes. DHA, docosahexaenoic acid. EPA, eicosapentaenoic acid. DALY, disability-adjusted life year. IQ, intelligence quotient. YLD, years lived with disability. YLL, years of life lost. Differences are alternative minus reference; negative values indicate health gains.

Table S28. Sensitivity analysis of model-projected outcome-specific and total DALY differences per 100,000 people aged ≥15 years in China with red and processed meat reduced simultaneously in proportion to baseline intakes (95% uncertainty intervals).

Health outcome	Current fish-mix strategy			Optimized fish-mix strategy		
	40 g/day	75 g/day	100 g/day	40 g/day	75 g/day	100 g/day
Red and processed meat-related CRC	-12.70 (-18.99, -6.39)	-22.91 (-34.03, -11.75)	-28.73 (-42.77, -14.64)	-12.70 (-18.99, -6.39)	-22.91 (-34.03, -11.75)	-28.73 (-42.77, -14.64)
Processed meat-related non-cardia stomach cancer	-3.46 (-5.87, -1.06)	-6.67 (-11.85, -1.98)	-8.22 (-14.41, -2.47)	-3.46 (-5.87, -1.06)	-6.67 (-11.85, -1.98)	-8.22 (-14.41, -2.47)
Red and processed meat-related T2D	-23.56 (-30.82, -15.73)	-42.37 (-55.36, -28.45)	-53.25 (-69.73, -35.74)	-23.56 (-30.82, -15.73)	-42.37 (-55.36, -28.45)	-53.25 (-69.73, -35.74)
EPA and DHA-related fatal CHD	-227.88 (-317.32, -150.85)	-374.54 (-514.17, -251.25)	-448.29 (-612.63, -301.94)	-497.97 (-676.20, -337.16)	-645.53 (-869.50, -440.39)	-710.35 (-952.82, -486.49)
EPA and DHA-related stroke	-61.10 (-89.35, -32.85)	-115.38 (-167.70, -62.46)	-147.94 (-214.52, -80.23)	-161.74 (-234.29, -87.65)	-267.12 (-384.25, -145.88)	-310.02 (-445.34, -169.61)
Fish intake-related offspring IQ	-62.47 (-85.14, -42.94)	-62.47 (-85.14, -42.94)	-62.47 (-85.14, -42.94)	-62.47 (-85.14, -42.94)	-62.47 (-85.14, -42.94)	-62.47 (-85.14, -42.94)
Methylmercury exposure-related offspring IQ	3.63 (1.27, 6.95)	8.04 (2.77, 15.75)	11.47 (3.93, 22.74)	2.08 (0.74, 3.89)	5.07 (1.77, 9.73)	7.36 (2.55, 14.27)
Total DALY difference	-386.66 (-510.68, -275.05)	-614.25 (-815.21, -431.05)	-735.80 (-976.38, -512.47)	-759.30 (-1,011.70, -523.08)	-1,041.38 (-1,386.81, -708.50)	-1,164.92 (-1,549.02, -792.62)

Note: Fatal CHD includes YLL only. Offspring IQ effects represent lifetime YLDs from the 2020 birth cohort. CRC, colorectal cancer. CHD, coronary heart disease. T2D, type 2 diabetes. DHA, docosahexaenoic acid. EPA, eicosapentaenoic acid. DALY, disability-adjusted life year. IQ, intelligence quotient. YLD, years lived with disability. YLL, years of life lost. Differences are alternative minus reference; negative values indicate health gains.

Table S29. Sensitivity analysis of model-projected outcome-specific and total DALY differences per 100,000 people aged ≥15 years in China under energy-matched substitution with fish increments limited by available red and processed meat energy (95% uncertainty intervals).

Health outcome	Current fish-mix strategy			Optimized fish-mix strategy		
	40 g/day	75 g/day	100 g/day	40 g/day	75 g/day	100 g/day
Red and processed meat-related CRC	-5.42 (-7.86, -2.99)	-10.59 (-15.40, -5.76)	-14.27 (-20.85, -7.68)	-5.22 (-7.54, -2.86)	-10.31 (-14.99, -5.60)	-13.99 (-20.42, -7.54)
Processed meat-related non-cardia stomach cancer	-1.96 (-3.56, -0.58)	-3.61 (-6.32, -1.09)	-4.78 (-8.29, -1.45)	-1.74 (-2.87, -0.55)	-3.41 (-5.74, -1.06)	-4.72 (-8.14, -1.44)
Red and processed meat-related T2D	-10.10 (-12.84, -7.02)	-19.91 (-25.43, -13.76)	-26.68 (-34.24, -18.34)	-9.92 (-12.60, -6.91)	-19.41 (-24.82, -13.41)	-26.23 (-33.64, -18.04)
EPA and DHA-related fatal CHD	-170.49 (-237.88, -112.58)	-276.79 (-380.48, -185.34)	-326.75 (-447.08, -219.65)	-387.56 (-526.11, -262.09)	-502.65 (-676.35, -342.42)	-550.67 (-738.41, -376.54)
EPA and DHA-related stroke	-45.34 (-66.42, -24.36)	-84.26 (-122.53, -45.52)	-105.75 (-153.48, -57.24)	-125.06 (-181.32, -67.74)	-203.75 (-293.40, -111.14)	-235.41 (-338.44, -128.59)
Fish intake-related offspring IQ	-53.84 (-73.40, -37.00)	-53.82 (-73.37, -36.99)	-53.88 (-73.45, -37.03)	-53.89 (-73.47, -37.04)	-53.87 (-73.44, -37.03)	-53.93 (-73.52, -37.06)
Methylmercury exposure-related offspring IQ	3.16 (1.10, 6.05)	6.73 (2.32, 13.20)	9.35 (3.20, 18.54)	1.79 (0.64, 3.34)	4.34 (1.51, 8.33)	6.01 (2.09, 11.65)
Total DALY difference	-283.98 (-374.70, -200.88)	-440.53 (-586.43, -308.30)	-520.23 (-694.47, -361.41)	-581.34 (-777.37, -397.32)	-787.69 (-1,054.09, -532.90)	-877.81 (-1,172.15, -592.56)

Note: All 32,351 participants were retained. Added fish energy was matched by removing processed meat first and then red meat; fish increments were limited when baseline meat energy was insufficient. Fatal CHD includes YLL only. Offspring IQ effects represent lifetime YLDs from the 2020 birth cohort. CRC, colorectal cancer; CHD, coronary heart disease; T2D, type 2 diabetes; DHA, docosahexaenoic acid; EPA, eicosapentaenoic acid; DALY, disability-adjusted life-year; IQ, intelligence quotient; YLD, year lived with disability; YLL, year of life lost. Differences are alternative minus reference; negative values indicate health gains. Uncertainty intervals exclude uncertainty in the representative energy densities.

Table S30. Modeled dietary changes and energy compensation among survey participants in the energy-matched sensitivity analysis across the six scenarios.

Dietary measure	Current fish-mix strategy			Optimized fish-mix strategy		
	40 g/day	75 g/day	100 g/day	40 g/day	75 g/day	100 g/day
Fish intake, g/day	47.13	69.75	86.26	47.15	69.84	86.45
Fish added, g/day	22.62	45.25	61.75	22.65	45.34	61.94
Red meat removed, g/day	6.81	13.66	18.73	6.65	13.34	18.30
Processed meat removed, g/day	1.37	2.71	3.63	1.34	2.65	3.56
Energy from fish added, kcal/day	24.19	48.36	65.95	23.61	47.22	64.46
Energy from meat removed, kcal/day	24.19	48.36	65.95	23.61	47.22	64.46
Fish increase limited by available meat energy, n (%)	4,772 (14.8)	7,062 (21.8)	8,863 (27.4)	4,755 (14.7)	6,989 (21.6)	8,667 (26.8)
Fish target achieved, n (%)	27,579 (85.2)	25,289 (78.2)	23,488 (72.6)	27,596 (85.3)	25,362 (78.4)	23,684 (73.2)

Note: Values are means across all 32,351 participants, except counts and percentages; percentages use the same full sample. Energy-limited participants had insufficient baseline red and processed meat energy to compensate for the planned fish increment. The achieved target refers to actual total fish intake at or above the nominal target. Fish increments were reduced when available meat energy was insufficient, so some participants remained below target. Participants already above target retained their baseline fish intake; consequently, mean fish intake can exceed a nominal target. Other foods were held constant. Energy values were calculated from the representative densities in Table S2; equality of added fish and removed meat energy was enforced for each participant. Because fish energy densities differed between S1 and S2, the achieved fish increments and meat reductions could differ slightly between the two strategies.

Table S31. Sensitivity analysis of model-projected outcome-specific and total DALY differences per 100,000 people aged ≥15 years in China with additional fish allocated using complete fish-category proportions from matched consumers (95% uncertainty intervals).

Health outcome	Current fish-mix strategy			Optimized fish-mix strategy		
	40 g/day	75 g/day	100 g/day	40 g/day	75 g/day	100 g/day
Red and processed meat-related CRC	-13.65 (-19.63, -7.80)	-24.42 (-35.50, -13.51)	-30.14 (-43.93, -16.23)	-13.65 (-19.63, -7.80)	-24.42 (-35.50, -13.51)	-30.14 (-43.93, -16.23)
Processed meat-related non-cardia stomach cancer	-5.20 (-8.50, -1.65)	-8.74 (-15.16, -2.66)	-10.19 (-17.66, -3.11)	-5.20 (-8.50, -1.65)	-8.74 (-15.16, -2.66)	-10.19 (-17.66, -3.11)
Red and processed meat-related T2D	-25.97 (-32.84, -18.46)	-45.68 (-58.27, -31.68)	-56.38 (-72.34, -38.75)	-25.97 (-32.84, -18.46)	-45.68 (-58.27, -31.68)	-56.38 (-72.34, -38.75)
EPA and DHA-related fatal CHD	-213.14 (-296.50, -141.18)	-346.98 (-476.58, -232.77)	-411.28 (-563.36, -276.59)	-498.84 (-676.19, -338.41)	-624.09 (-842.28, -425.01)	-697.57 (-936.79, -477.27)
EPA and DHA-related stroke	-58.70 (-85.77, -31.60)	-109.41 (-158.85, -59.20)	-139.35 (-201.94, -75.53)	-164.23 (-237.69, -89.07)	-267.25 (-384.26, -146.09)	-300.49 (-431.68, -164.36)
Fish intake-related offspring IQ	-62.47 (-85.14, -42.94)	-62.47 (-85.14, -42.94)	-62.47 (-85.14, -42.94)	-62.47 (-85.14, -42.94)	-62.47 (-85.14, -42.94)	-62.47 (-85.14, -42.94)
Methylmercury exposure-related offspring IQ	3.59 (1.26, 6.88)	7.99 (2.76, 15.65)	11.39 (3.91, 22.55)	2.05 (0.73, 3.84)	5.03 (1.76, 9.64)	7.30 (2.53, 14.15)
Total DALY difference	-375.04 (-491.32, -269.66)	-588.05 (-776.58, -416.05)	-696.88 (-920.56, -489.34)	-767.97 (-1020.55, -529.00)	-1026.69 (-1366.13, -699.65)	-1148.62 (-1524.32, -784.29)

Note: In S1, sampled fish proportions were assigned to participants who reported no fish intake. In S2, they were assigned to all participants requiring additional fish and were restricted to the seven selected categories. Baseline fish intake, fish increments and meat reductions were unchanged. Matching and proportional scaling are described in the Supplementary Methods. The 95% uncertainty intervals are conditional on the assigned mixtures. Fatal CHD includes YLL only. Offspring IQ effects represent lifetime YLDs from the 2020 birth cohort. CRC, colorectal cancer; CHD, coronary heart disease; T2D, type 2 diabetes; DHA, docosahexaenoic acid; EPA, eicosapentaenoic acid; DALY, disability-adjusted life-year; IQ, intelligence quotient; YLD, year lived with disability; YLL, year of life lost. Differences are alternative minus reference; negative values indicate health gains.

Table S32. Sensitivity analysis of model-projected total DALY differences per 100,000 people aged ≥15 years in China and the advantage of S2 over S1 across 50 repeated fish-species allocations with health-effect parameters held fixed.

Fish-species allocation rule	Target, g/day	S1 total DALY difference	S2 total DALY difference	S2 health-gain advantage over S1
Original probability-based allocation	40	-390.75 (-401.71, -381.65)	-761.80 (-775.69, -754.09)	370.80 (352.37, 388.88)
Original probability-based allocation	75	-621.76 (-631.10, -609.27)	-1,047.27 (-1,057.18, -1,041.11)	425.95 (410.01, 440.40)
Original probability-based allocation	100	-742.08 (-750.56, -728.73)	-1,171.01 (-1,177.82, -1,167.28)	429.42 (417.62, 441.72)
Matched-consumer allocation	40	-379.67 (-392.84, -372.30)	-763.01 (-771.61, -753.84)	383.13 (369.57, 394.04)
Matched-consumer allocation	75	-594.22 (-609.59, -587.29)	-1,022.47 (-1,030.33, -1,015.56)	427.89 (413.35, 439.19)
Matched-consumer allocation	100	-702.71 (-716.64, -696.25)	-1,146.13 (-1,150.56, -1,142.54)	444.52 (429.34, 451.87)

Note: Each allocation rule was repeated independently 50 times. Values are medians (minimum, maximum) across these assignments, expressed per 100,000 people aged ≥15 years. The original probability-based rule selected fish categories using observed consumption probabilities and weighted them by intake shares. The matched-consumer rule used complete fish-category proportions from sampled consumers. Baseline fish intake, fish increments and meat reductions were unchanged in every assignment. Dose-response coefficients, disability weights and disease-burden inputs were fixed at the medians of their respective original uncertainty draws. Baseline and reference effects were recalculated using the same fixed parameters, with common random numbers in the exposure simulations. The minimum-maximum ranges describe allocation variability, not 95% uncertainty intervals. S1 and S2 values are alternative-minus-reference DALY differences; negative values indicate health gains. The S2 advantage equals the S1 DALY difference minus the S2 DALY difference within each assignment; positive values indicate larger gains under S2. S1, current fish-mix strategy; S2, optimized fish-mix strategy; DALY, disability-adjusted life-year.**Supplementary Figures**

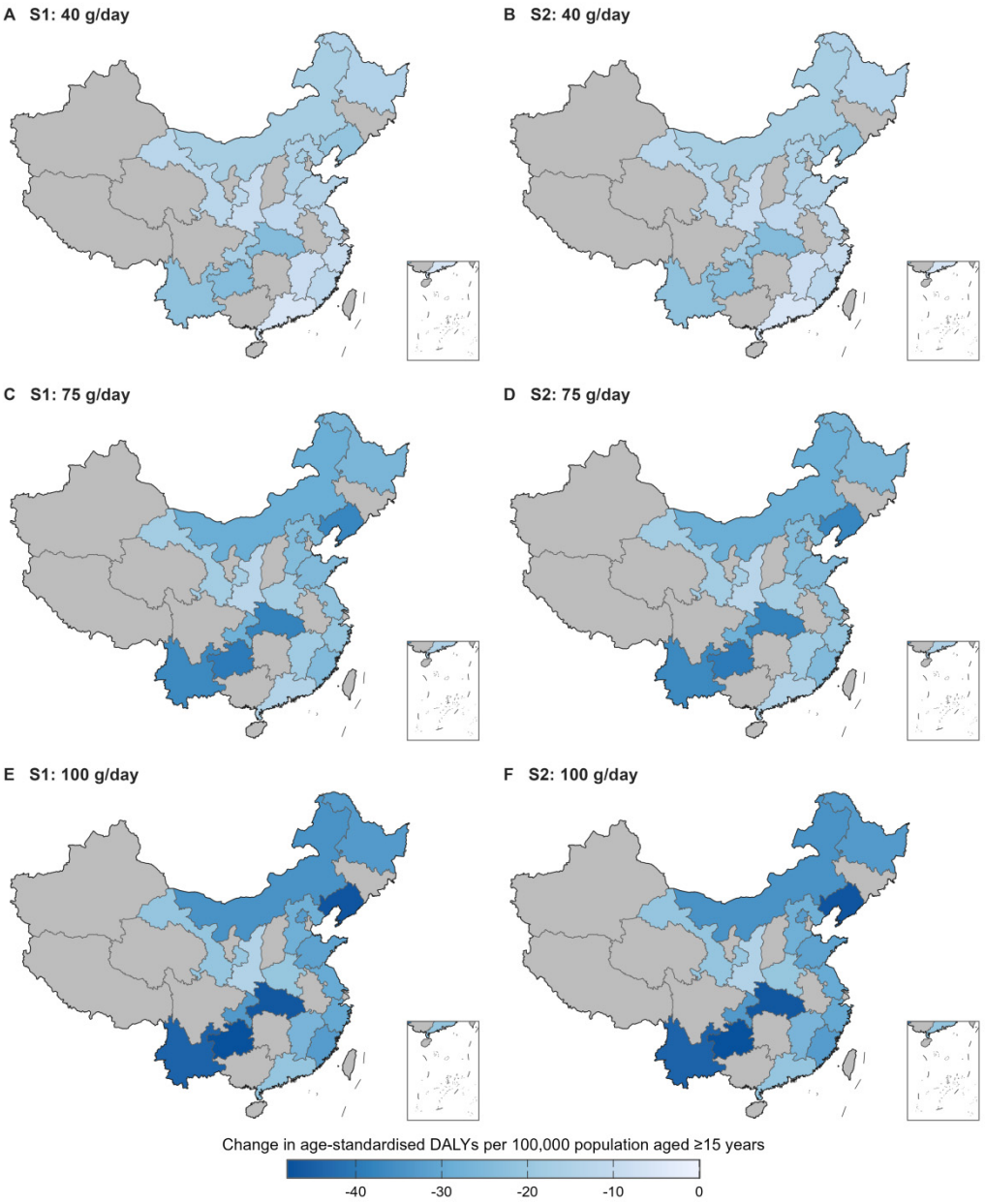

Figure S1. Model-projected provincial differences in age-standardized DALYs per 100,000 Chinese residents aged ≥15 years for colorectal cancer in each alternative scenario compared with the reference scenario**. A-F** represent S1 at 40 g/day, S2 at 40 g/day, S1 at 75 g/day, S2 at 75 g/day, S1 at 100 g/day, and S2 at 100 g/day, respectively. Provinces without dietary survey data are shown in grey. S1, current fish-mix strategy. S2, optimized fish-mix strategy. DALY, disability-adjusted life year.

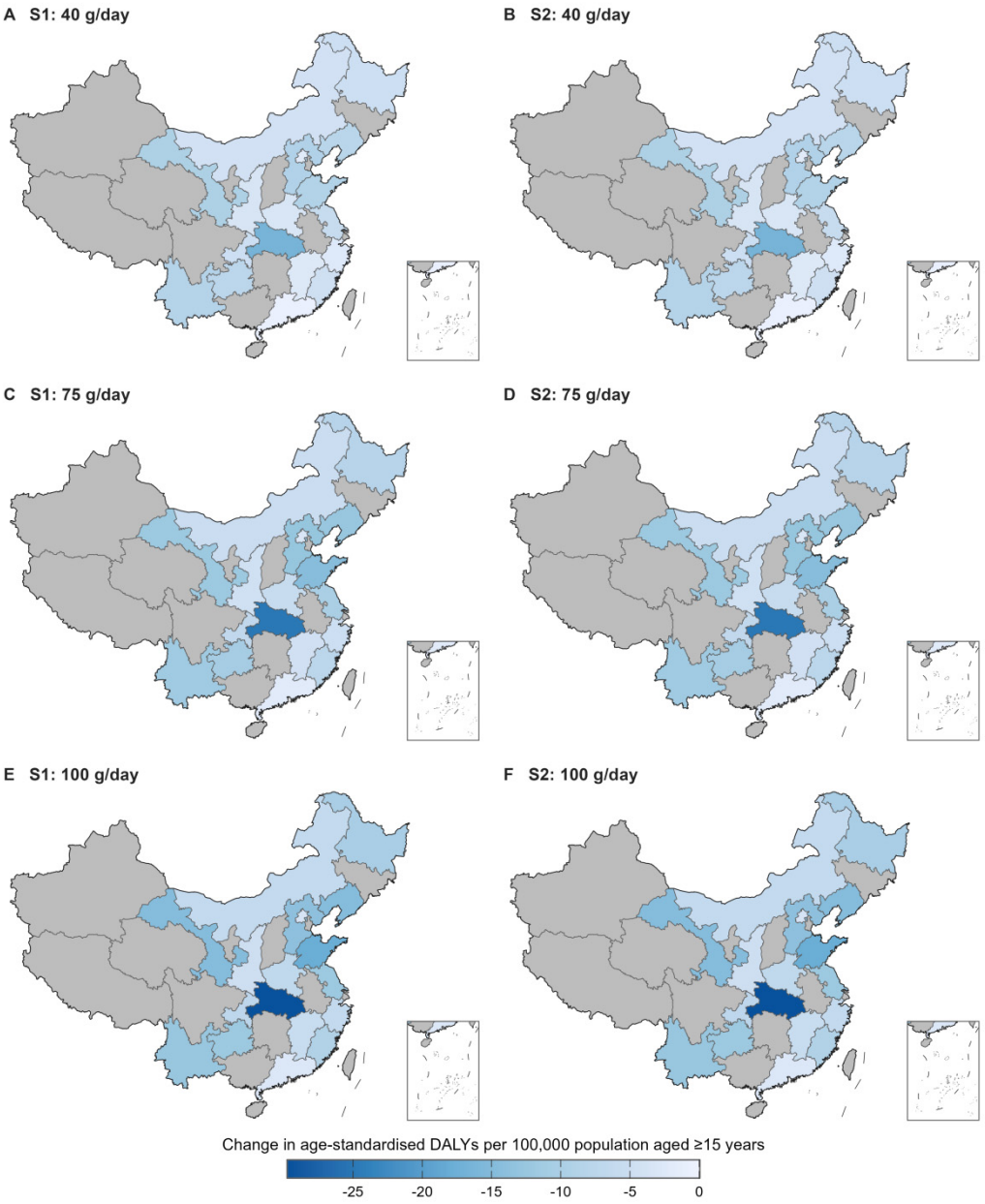

Figure S2. Model-projected provincial differences in age-standardized DALYs per 100,000 Chinese residents aged ≥15 years for non-cardia stomach cancer in each alternative scenario compared with the reference scenario. **A-F** represent S1 at 40 g/day, S2 at 40 g/day, S1 at 75 g/day, S2 at 75 g/day, S1 at 100 g/day, and S2 at 100 g/day, respectively. Provinces without dietary survey data are shown in grey. S1, current fish-mix strategy. S2, optimized fish-mix strategy. DALY, disability-adjusted life year.

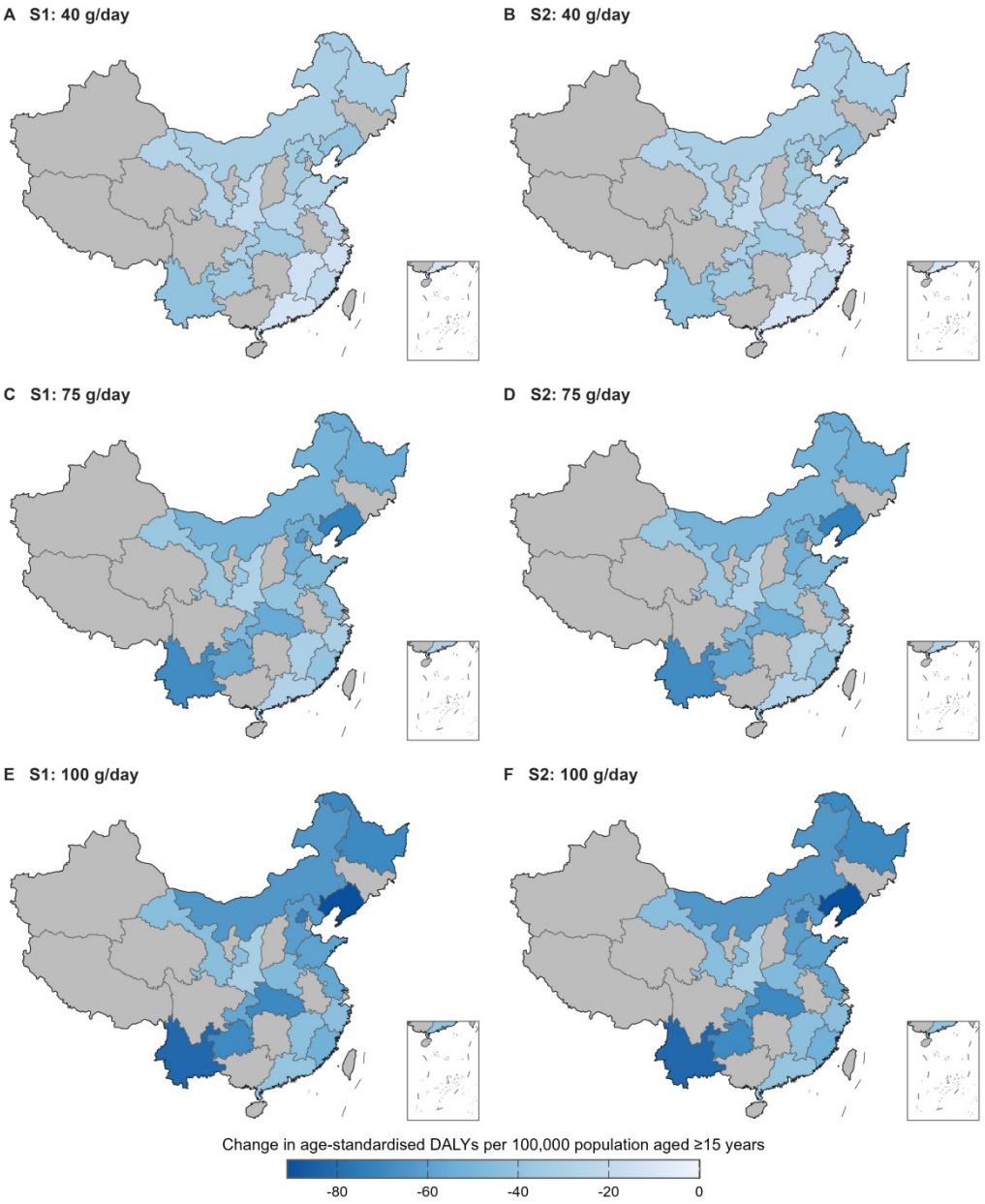

Figure S3. Model-projected provincial differences in age-standardized DALYs per 100,000 Chinese residents aged ≥15 years for Type 2 diabetes in each alternative scenario compared with the reference scenario. **A-F** represent S1 at 40 g/day, S2 at 40 g/day, S1 at 75 g/day, S2 at 75 g/day, S1 at 100 g/day, and S2 at 100 g/day, respectively. Provinces without dietary survey data are shown in grey. S1, current fish-mix strategy. S2, optimized fish-mix strategy. DALY, disability-adjusted life year.

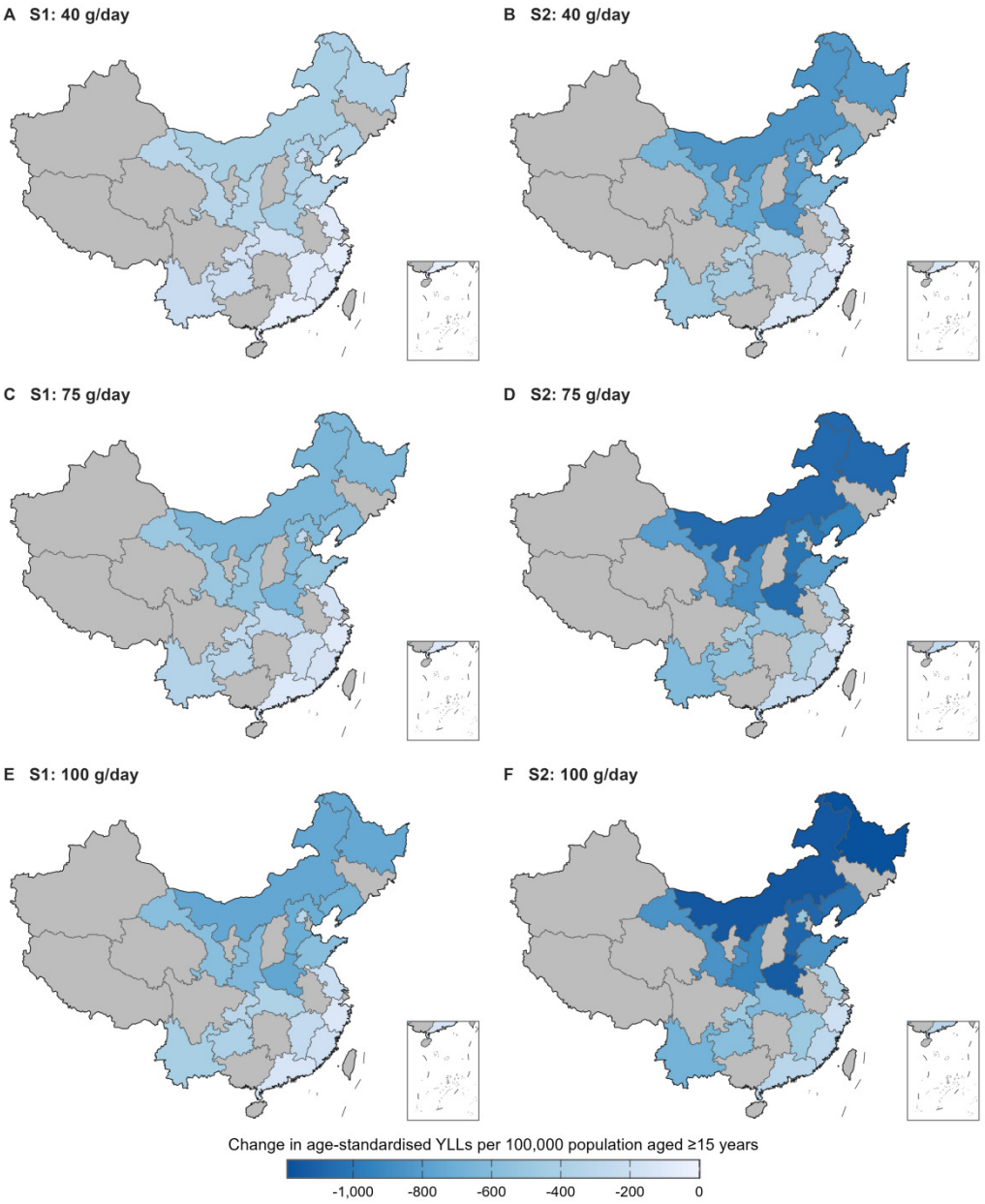

Figure S4. Model-projected provincial differences in age-standardized YLLs per 100,000 Chinese residents aged ≥15 years for fatal coronary heart disease in each alternative scenario compared with the reference scenario. **A-F** represent S1 at 40 g/day, S2 at 40 g/day, S1 at 75 g/day, S2 at 75 g/day, S1 at 100 g/day, and S2 at 100 g/day, respectively. Provinces without dietary survey data are shown in grey. S1, current fish-mix strategy. S2, optimized fish-mix strategy. DALY, disability-adjusted life year.

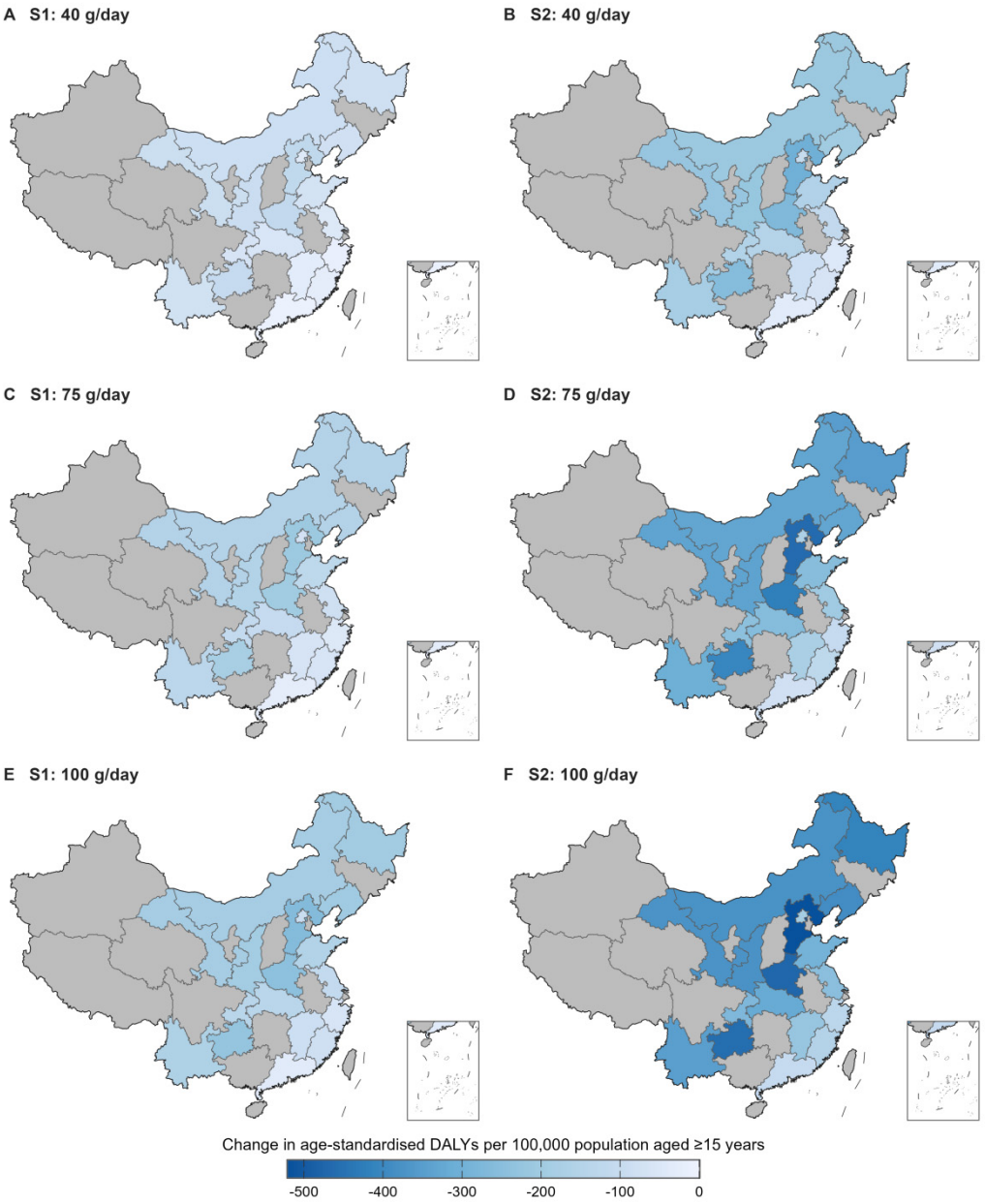

Figure S5. Model-projected provincial differences in age-standardized DALYs per 100,000 Chinese residents aged ≥15 years for stroke in each alternative scenario compared with the reference scenario. **A-F** represent S1 at 40 g/day, S2 at 40 g/day, S1 at 75 g/day, S2 at 75 g/day, S1 at 100 g/day, and S2 at 100 g/day, respectively. Provinces without dietary survey data are shown in grey. S1, current fish-mix strategy. S2, optimized fish-mix strategy. DALY, disability-adjusted life year.

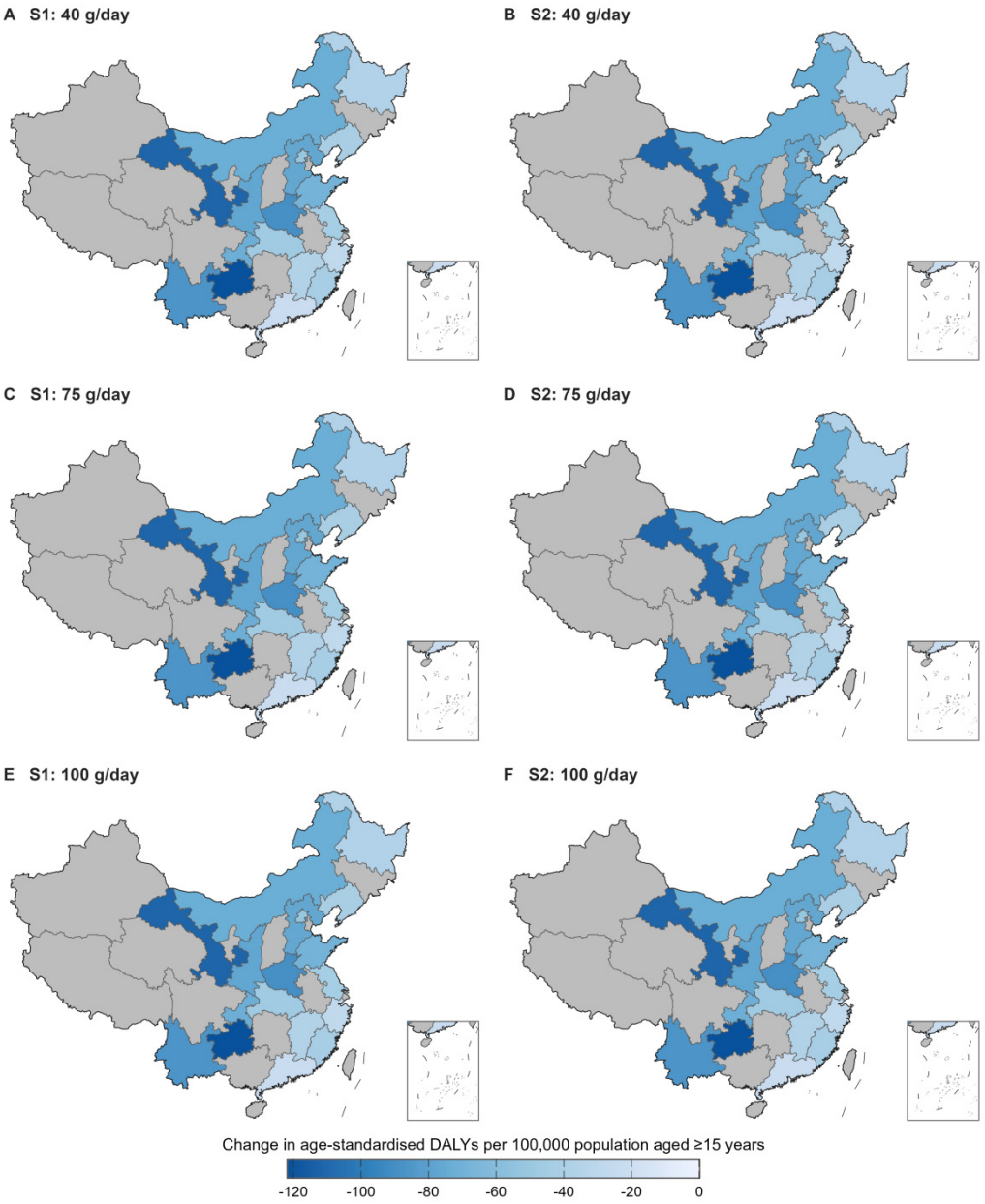

Figure S6. Model-projected provincial differences in age-standardized DALYs per 100,000 Chinese residents aged ≥15 years for offspring IQ-related benefit from maternal fish intake in each alternative scenario compared with the reference scenario. **A-F** represent S1 at 40 g/day, S2 at 40 g/day, S1 at 75 g/day, S2 at 75 g/day, S1 at 100 g/day, and S2 at 100 g/day, respectively. Provinces without dietary survey data are shown in grey. S1, current fish-mix strategy. S2, optimized fish-mix strategy. DALY, disability-adjusted life year.

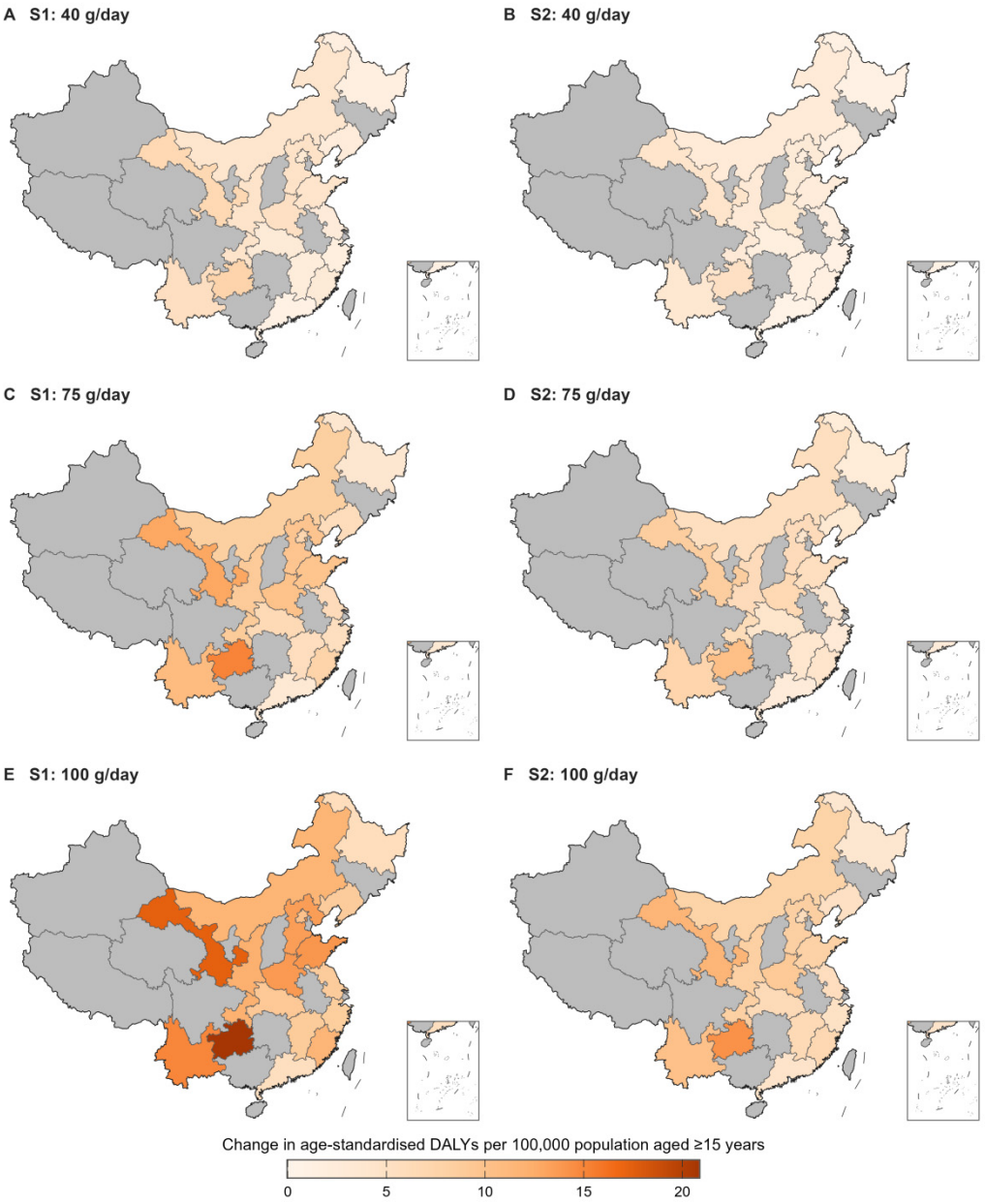

Figure S7. Model-projected provincial differences in age-standardized DALYs per 100,000 Chinese residents aged ≥15 years for offspring IQ-related harm from methylmercury exposure from maternal fish intake in each alternative scenario compared with the reference scenario. **A-F** represent S1 at 40 g/day, S2 at 40 g/day, S1 at 75 g/day, S2 at 75 g/day, S1 at 100 g/day, and S2 at 100 g/day, respectively. Provinces without dietary survey data are shown in grey. S1, current fish-mix strategy. S2, optimized fish-mix strategy. DALY, disability-adjusted life year.

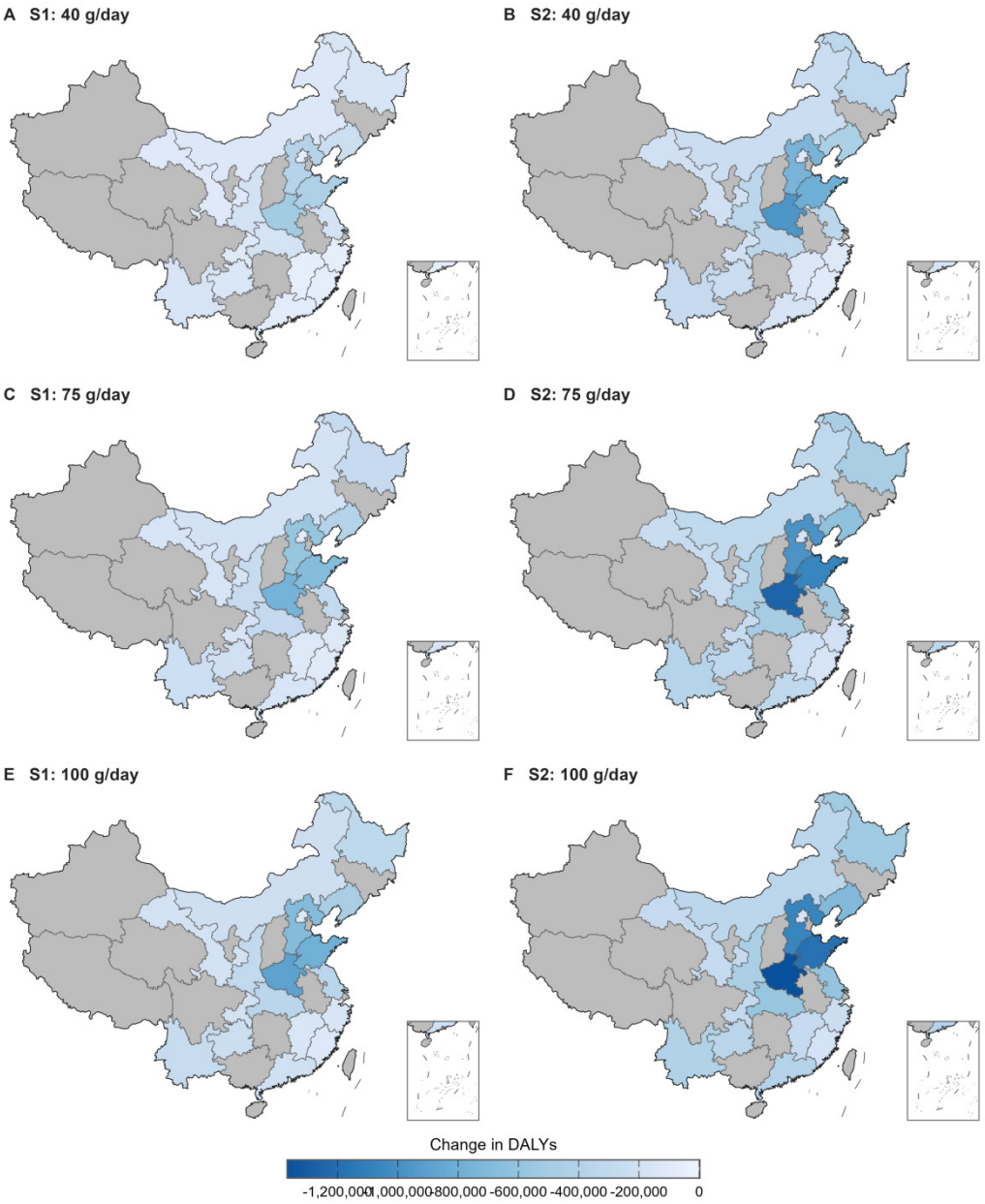

Figure S8. Model-projected provincial differences in total DALYs in China in each alternative scenario compared with the reference scenario. **A-F** represent S1 at 40 g/day, S2 at 40 g/day, S1 at 75 g/day, S2 at 75 g/day, S1 at 100 g/day, and S2 at 100 g/day, respectively. Provinces without dietary survey data are shown in grey. S1, current fish-mix strategy. S2, optimized fish-mix strategy. DALY, disability-adjusted life year

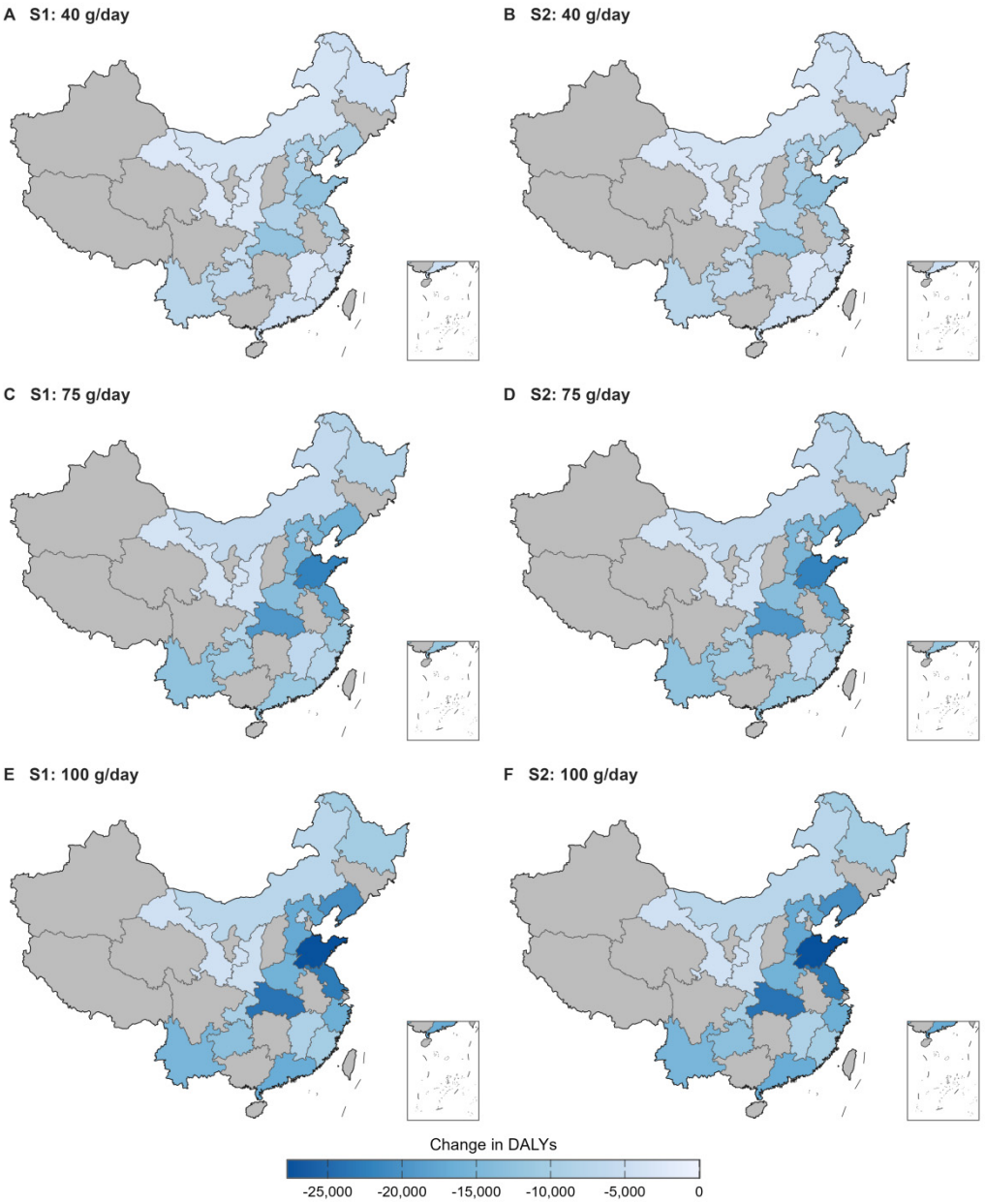

Figure S9. Model-projected provincial differences in DALYs for colorectal cancer among Chinese residents aged ≥15 years in each alternative scenario compared with the reference scenario. **A-F** represent S1 at 40 g/day, S2 at 40 g/day, S1 at 75 g/day, S2 at 75 g/day, S1 at 100 g/day, and S2 at 100 g/day, respectively. Provinces without dietary survey data are shown in grey. S1, current fish-mix strategy. S2, optimized fish-mix strategy. DALY, disability-adjusted life year.

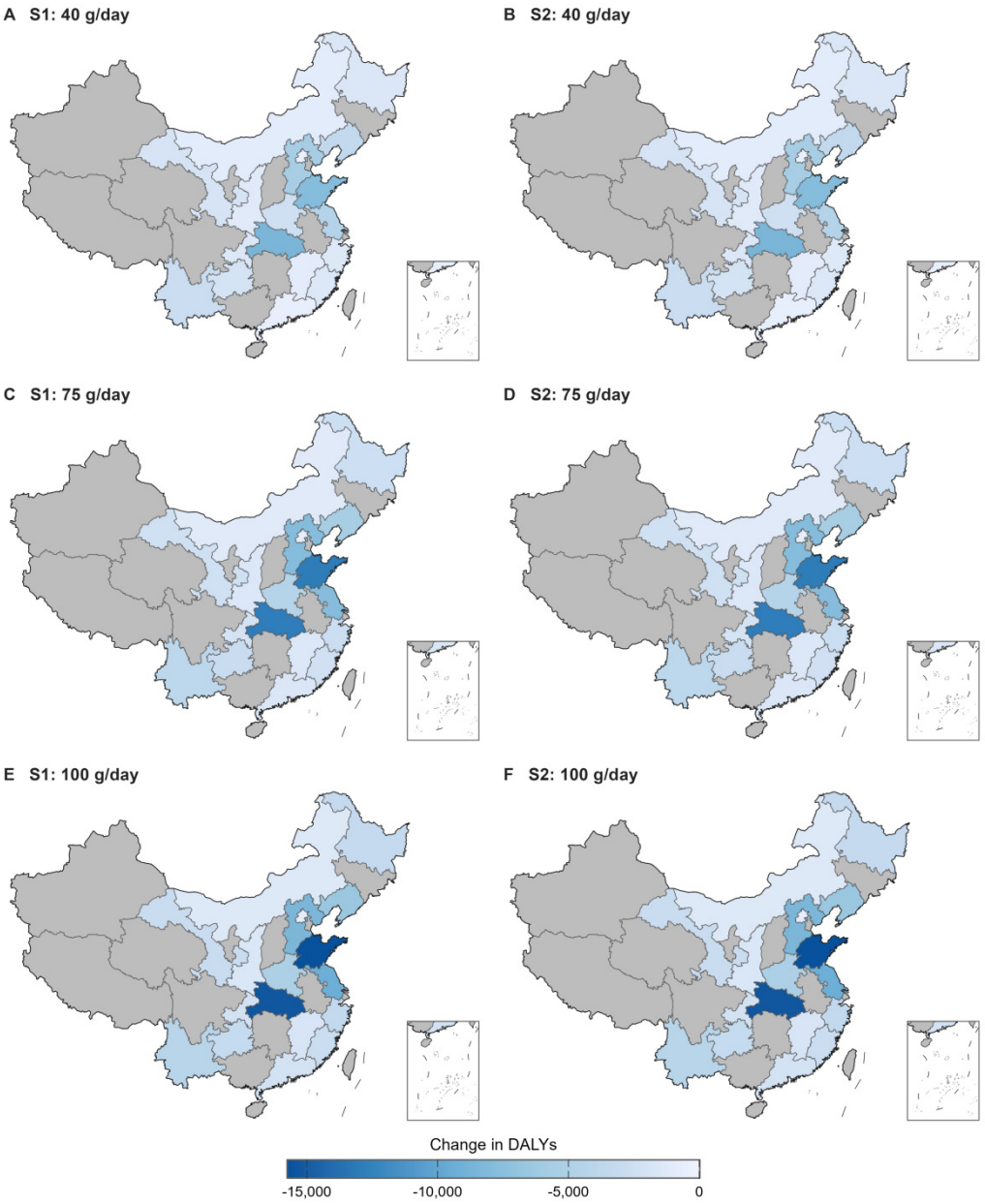

Figure S10. Model-projected provincial differences in DALYs for non-cardia stomach cancer among Chinese residents aged ≥15 years in each alternative scenario compared with the reference scenario. **A-F** represent S1 at 40 g/day, S2 at 40 g/day, S1 at 75 g/day, S2 at 75 g/day, S1 at 100 g/day, and S2 at 100 g/day, respectively. Provinces without dietary survey data are shown in grey. S1, current fish-mix strategy. S2, optimized fish-mix strategy. DALY, disability-adjusted life year.

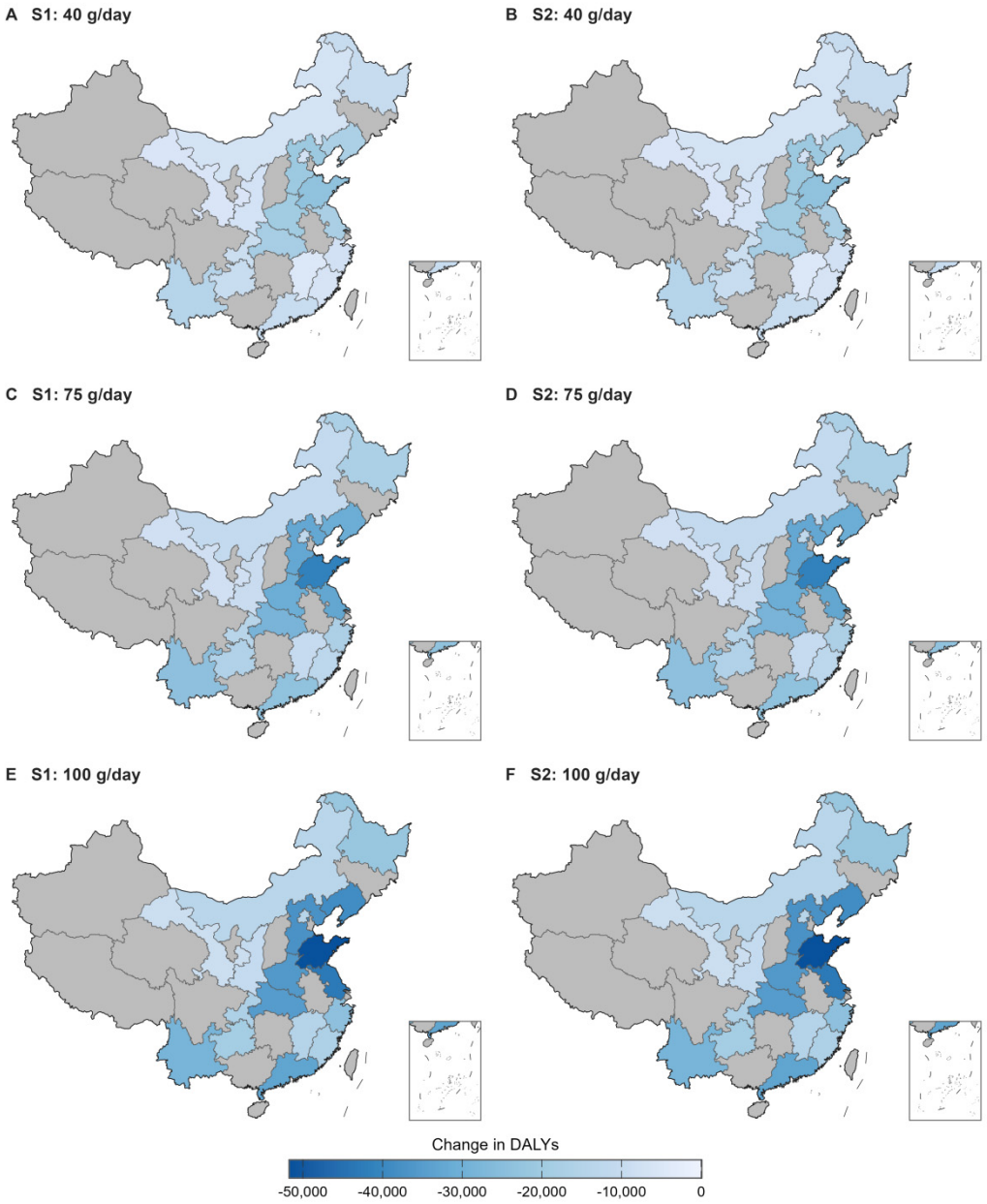

Figure S11. Model-projected provincial differences in DALYs for Type 2 diabetes among Chinese residents aged ≥15 years in each alternative scenario compared with the reference scenario. **A-F** represent S1 at 40 g/day, S2 at 40 g/day, S1 at 75 g/day, S2 at 75 g/day, S1 at 100 g/day, and S2 at 100 g/day, respectively. Provinces without dietary survey data are shown in grey. S1, current fish-mix strategy. S2, optimized fish-mix strategy. DALY, disability-adjusted life year.

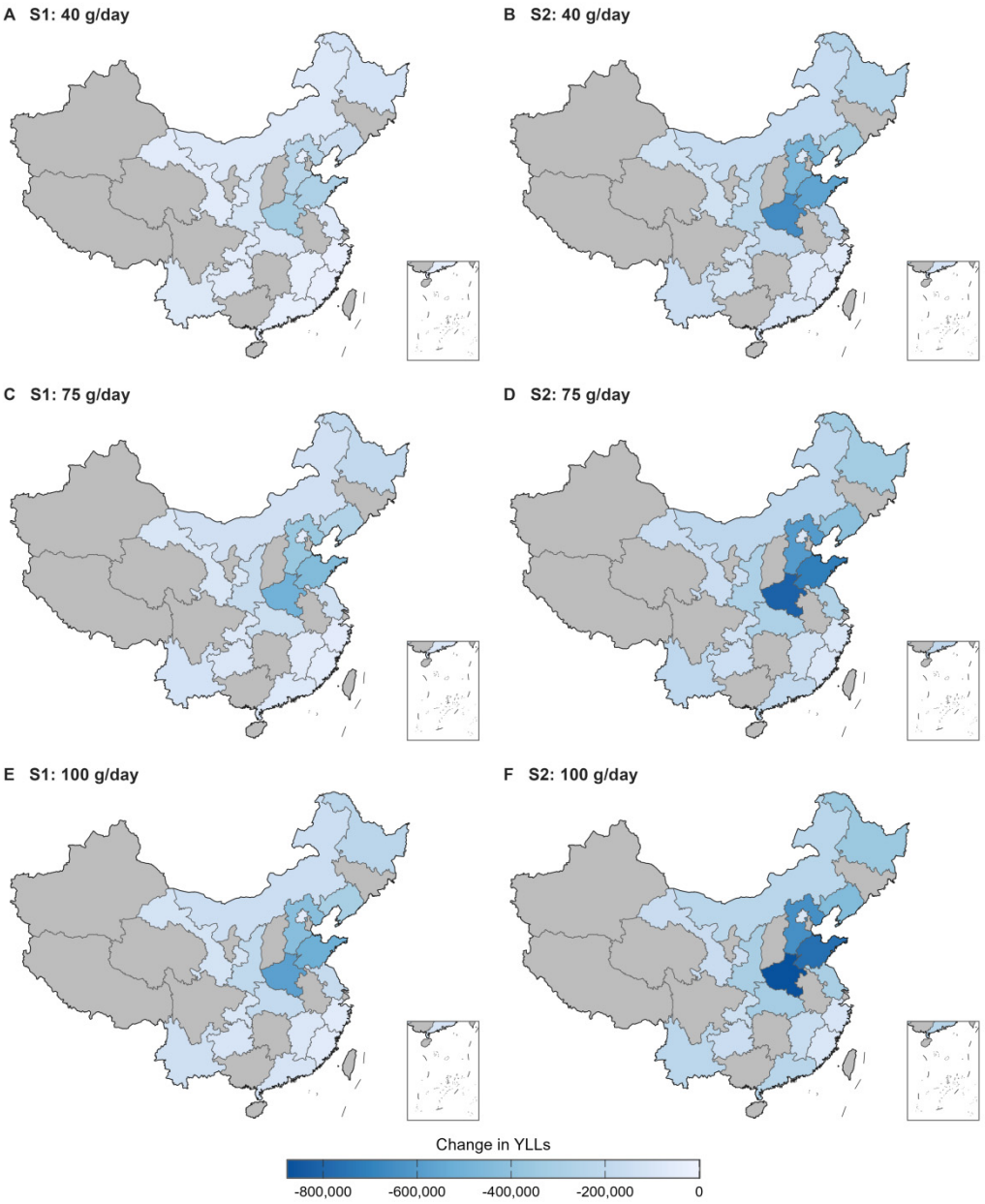

Figure S12. Model-projected provincial differences in DALYs for fatal coronary heart disease among Chinese residents aged ≥15 years in each alternative scenario compared with the reference scenario. **A-F** represent S1 at 40 g/day, S2 at 40 g/day, S1 at 75 g/day, S2 at 75 g/day, S1 at 100 g/day, and S2 at 100 g/day, respectively. Provinces without dietary survey data are shown in grey. S1, current fish-mix strategy. S2, optimized fish-mix strategy. DALY, disability-adjusted life year.

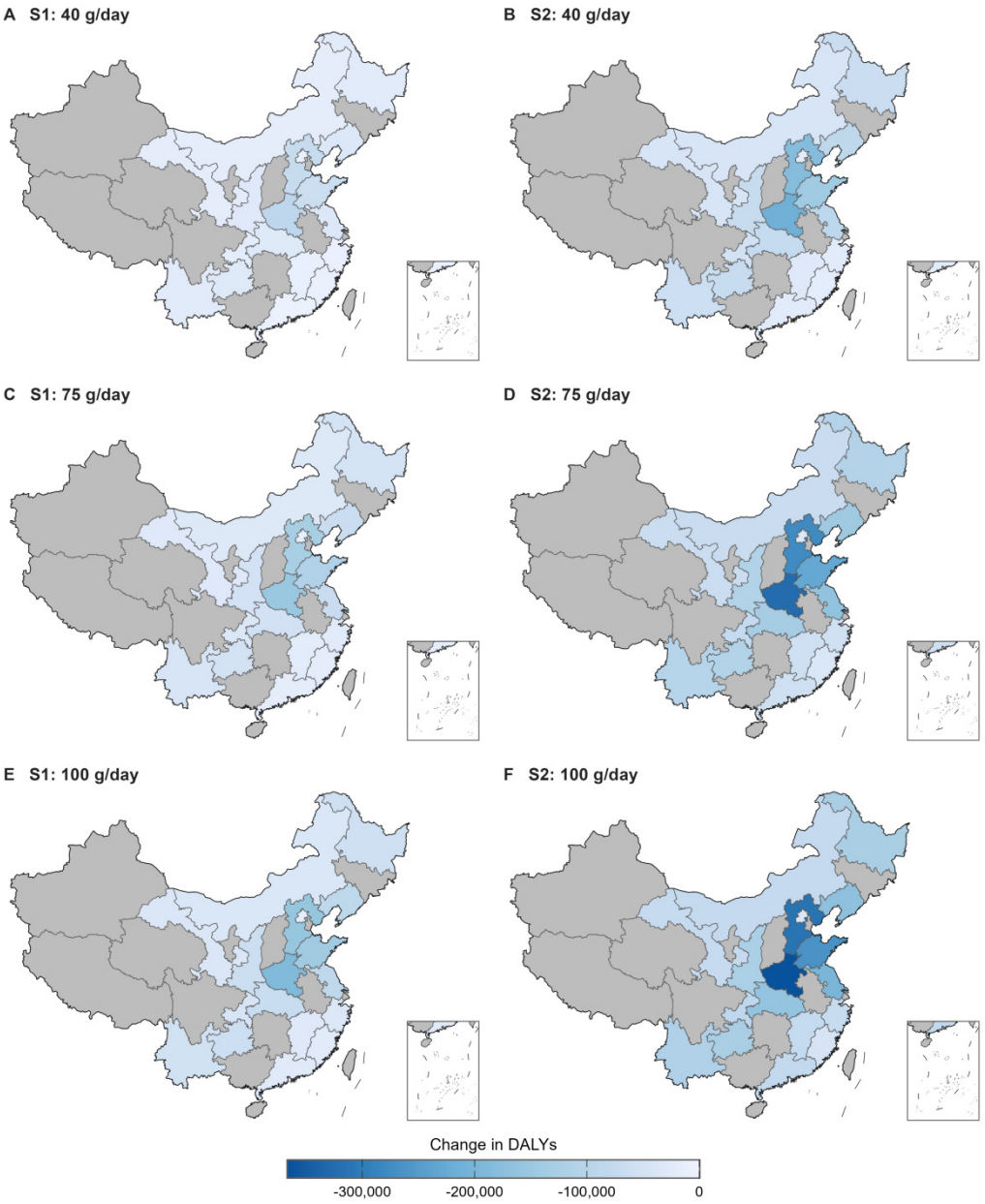

Figure S13. Model-projected provincial differences in DALYs for stroke among Chinese residents aged ≥15 years in each alternative scenario compared with the reference scenario. **A-F** represent S1 at 40 g/day, S2 at 40 g/day, S1 at 75 g/day, S2 at 75 g/day, S1 at 100 g/day, and S2 at 100 g/day, respectively. Provinces without dietary survey data are shown in grey. S1, current fish-mix strategy. S2, optimized fish-mix strategy. DALY, disability-adjusted life year.

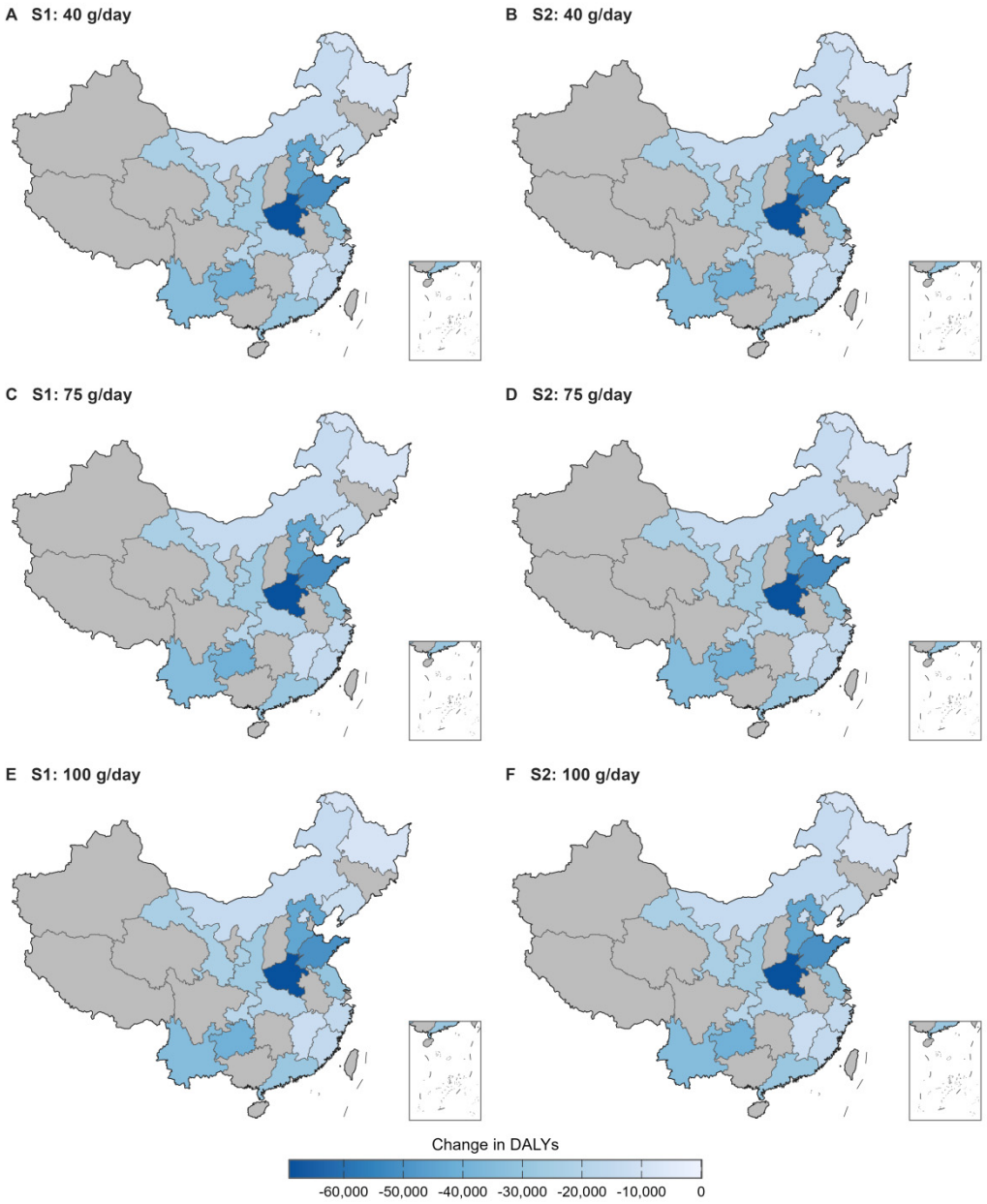

Figure S14. Model-projected provincial differences in DALYs for offspring IQ-related benefit in China in each alternative scenario compared with the reference scenario. **A-F** represent S1 at 40 g/day, S2 at 40 g/day, S1 at 75 g/day, S2 at 75 g/day, S1 at 100 g/day, and S2 at 100 g/day, respectively. Provinces without dietary survey data are shown in grey. S1, current fish-mix strategy. S2, optimized fish-mix strategy. DALY, disability-adjusted life year.

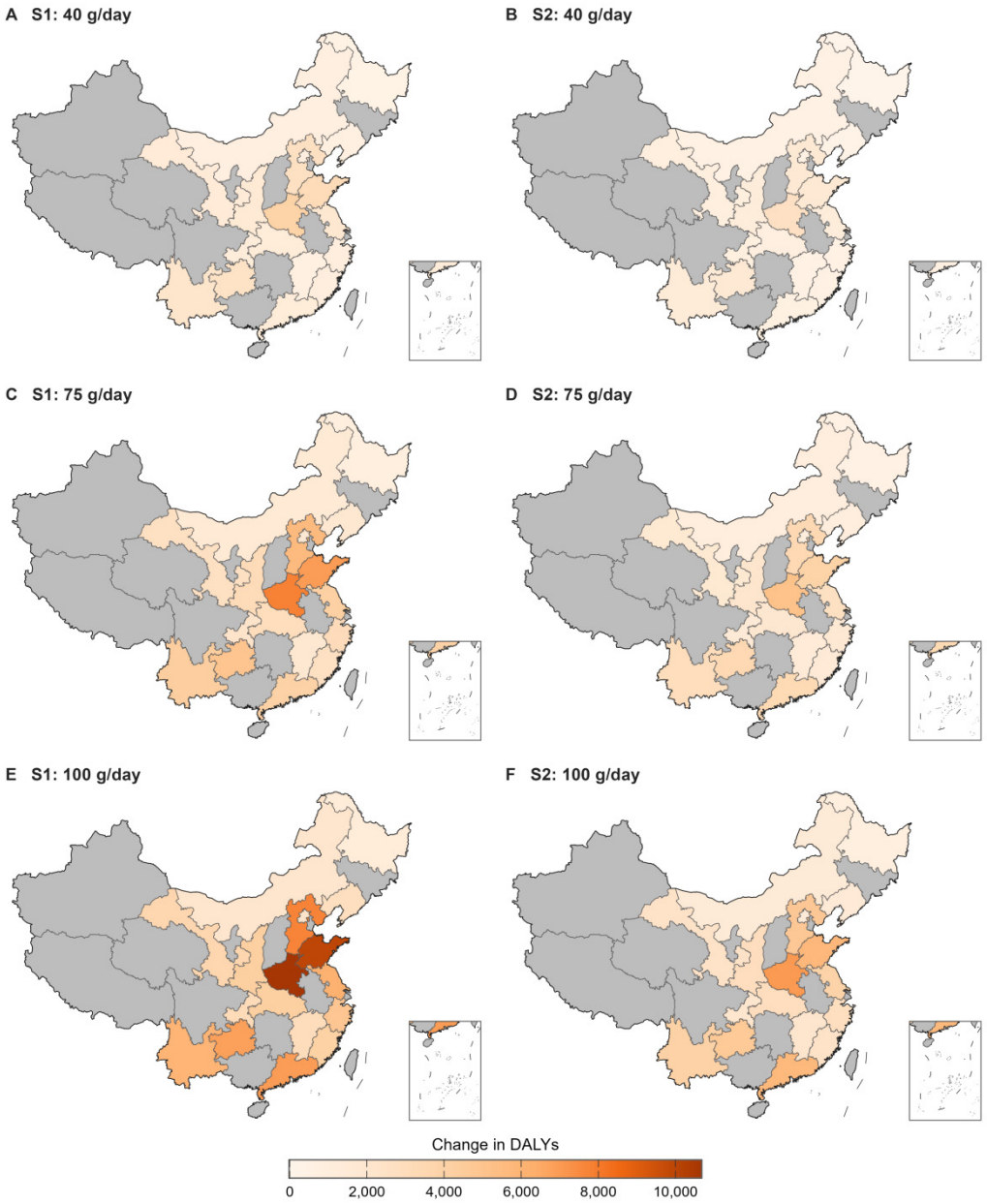

Figure S15. Model-projected provincial differences in DALYs for offspring IQ-related harm in China in each alternative scenario compared with the reference scenario. **A-F** represent S1 at 40 g/day, S2 at 40 g/day, S1 at 75 g/day, S2 at 75 g/day, S1 at 100 g/day, and S2 at 100 g/day, respectively. Provinces without dietary survey data are shown in grey. S1, current fish-mix strategy. S2, optimized fish-mix strategy. DALY, disability-adjusted life year.

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